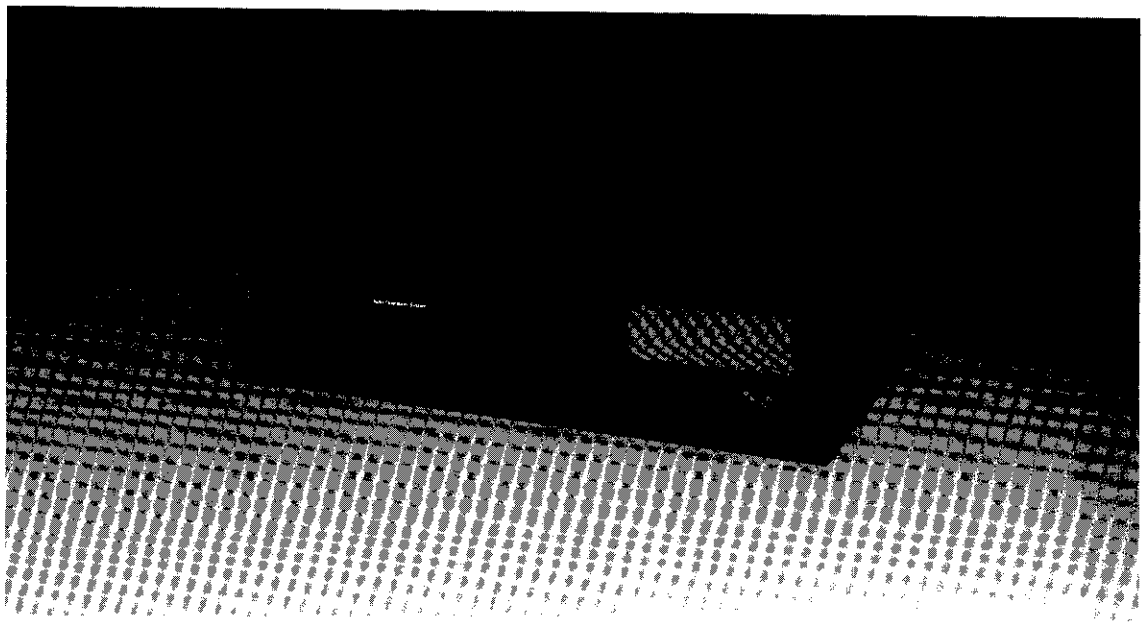
Operating Instructions

VHS PAL HQ

Video Cassette Recorder

NV-G21 Series



National

Before attempting to connect, operate or adjust this product, please read these instructions completely.

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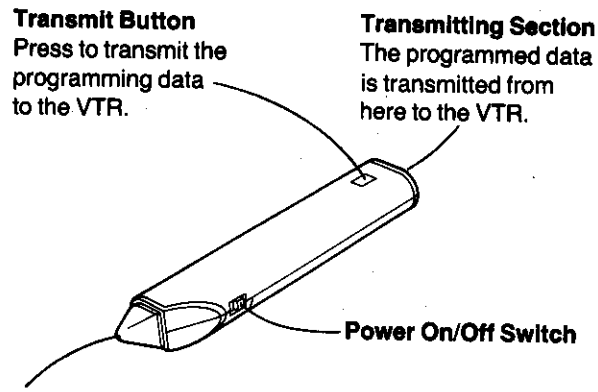
National

Operating Instructions for the Digital Scanner

This Digital Scanner lets you programme timer recordings by tracing the corresponding bar codes on the supplied Programming Sheet and then transmitting the data to the VTR.

Names and Functions

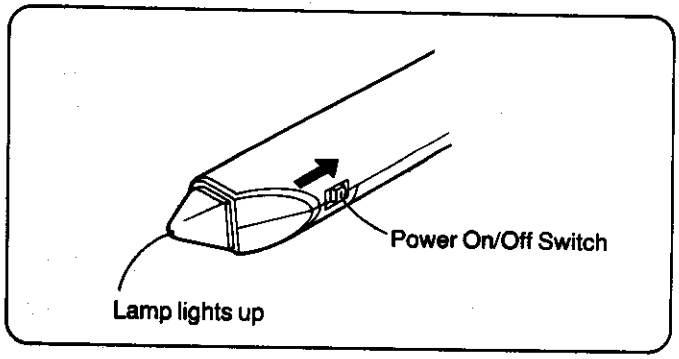

Transmit Button
Press to transmit the programming data to the VTR.
Transmitting Section
The programmed data is transmitted from here to the VTR.
Power On/Off Switch
Bar Code Reading Section
When the scanner is turned on, the red lamp will be lit.

How to Operate the Digital Scanner

Before using the Digital Scanner, batteries must be inserted.

Turning the Digital Scanner On

Set Power On/Off Switch to "ON".

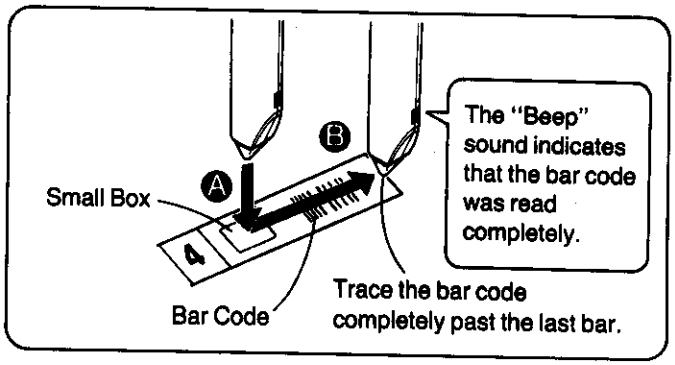


- If no operation is performed for more than 25 seconds, the scanner will automatically switch over to the power-saving standby condition and the lamp will go off. (In this case, if bar codes have already been read but not yet transmitted to the VTR, the data will be cancelled.)
- When the Power On/Off Switch is set to "ON" but the lamp is not lit, set the switch to "OFF" and then to "ON" again.

Tracing the Bar Codes

Ⓐ Place the Digital Scanner vertically on the Small Box.

Ⓑ Trace the bar code quickly in the direction of the arrow.


Small Box
Bar Code
The "Beep" sound indicates that the bar code was read completely.
Trace the bar code completely past the last bar.

- If the bar code is traced slowly, it cannot be read correctly.
- When there is no "Beep" sound, the reading of the bar code is incomplete. Trace the bar code again.
- When using the Programming Sheet, put it on a flat surface. Reading bent the bar codes or reading them whilst holding them in your hand may cause incorrect operation.
- Do not deviate from the bar code, nor stop tracing halfway.
- Do not slant the scanner to trace the bar code.

Programming a Timer Recording

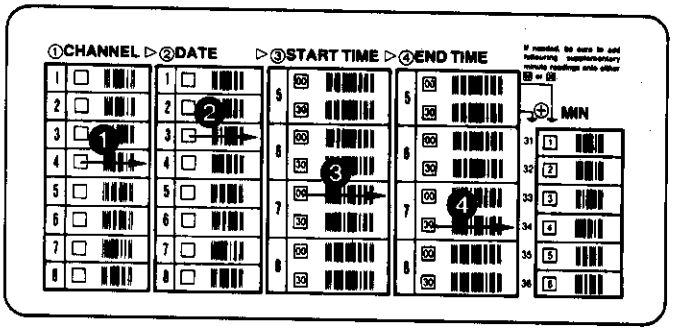
Example: When programming a timer recording for a programme that will be broadcast on channel position 4 on the 3rd of the month, from 7:00 to 7:30, trace the bar codes in the order of the numbered arrows shown below.

❶ Trace the bar code for "CHANNEL".

❷ Trace the bar code for "DATE".

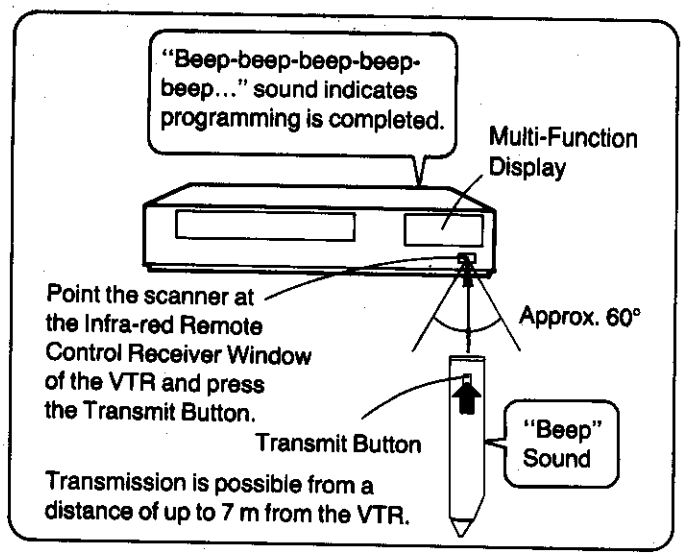
❸ Trace the bar code for "START TIME".

❹ Trace the bar code for "END TIME".



- The "Bee Bee Bee Bee Beeeeep" sound signals that the scanner is now ready for data transmission.
- When no sound is heard, read the bar codes once again.
- If more than one bar code is traced in the same group, only the last tracing will be effective.
- The bar codes for the time from "0:00" (midnight) to "4:59" in the morning are on the back of the Programming Sheet.
- If the "CANCEL" bar code is read, all bar codes that have been read so far will be cancelled.

⑤ Keep pressing the Transmit Button and confirm that the programmed data on the Multi-Function Display of the VTR are as desired.
After releasing the button, the data will continue to be displayed for about 12 seconds.

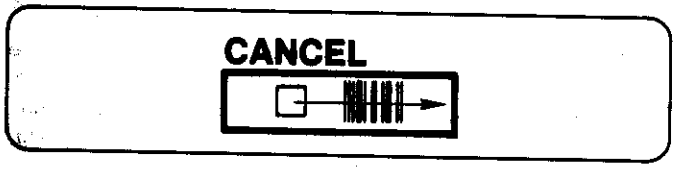

"Beep-beep-beep-beep-beep..." sound indicates programming is completed.
Multi-Function Display
Point the scanner at the Infra-red Remote Control Receiver Window of the VTR and press the Transmit Button.
Approx. 60°
Transmit Button
"Beep" Sound
Transmission is possible from a distance of up to 7 m from the VTR.

- If the transmission was not received correctly, the "Beep-Beep, Beep-Beep" sound from the VTR will warn you. In this case, perform transmission again.
- The transmission is possible when the VTR is turned on but is not in any of the recording or playback operation modes. It is also possible when the VTR is in the timer recording standby mode (⏲ indication is lit).
- The programming will be done on the next lower unoccupied timer programme number (7~1).
  If all programme numbers are occupied, the "Beep-Beep, Beep-Beep" sound from the VTR will warn you that the programming cannot be made.
- When the Transmit Button is pressed, the VTR will automatically be put into the timer recording standby condition and the VTR will be turned off.
- To operate the VTR before the timer recording will be performed, press the Timer Rec. Button to suspend the timer recording standby condition. After using the VTR, be sure to press the Timer Rec. Button again, otherwise the timer recording will not be made.

For Programming More Than One Timer Recording in Succession

Repeat the following operation steps ①–③.

① Trace the "CANCEL" bar code on the Programming Sheet.

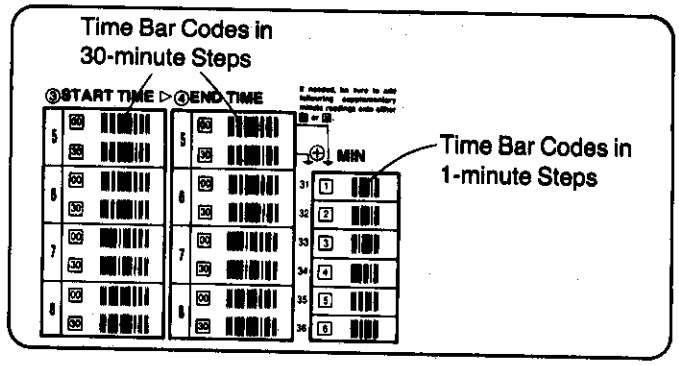


② Trace the bar codes for "CHANNEL", "DATE", "START TIME" and "END TIME".

③ Confirm that the present time is displayed on the Multi-Function Display of the VTR, and transmit the data.
- If the next timer programming data are transmitted while the previous timer programming data are still being displayed, the displayed timer recording data will be

How to Trace the Bar Codes for Start and End Times

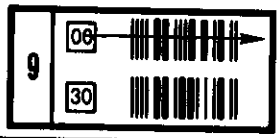
There are two kinds of time bar codes on the Programming Sheet: time bar codes selectable in 30-minute steps and in 1-minute steps.



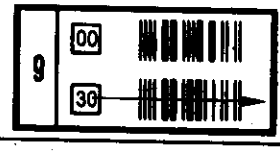
① Setting the Time in 30-minute Steps

- Trace the appropriate bar code in the 30-minute-step column only.

For example: when setting to "9:00"



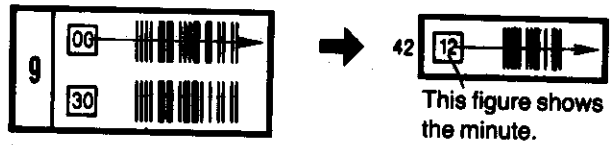
For example: when setting to "9:30"



② Setting the Time in 1-minute Steps

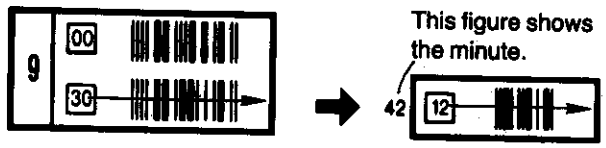
- When setting to a minute between 1 and 29, trace the appropriate "+MIN" bar code after tracing the 00 bar code.

For example: when setting to "9:12"



- When setting to a minute between 31 and 59, trace the appropriate "+MIN" bar code after tracing the 30 bar code.

For example: when setting to "9:42"

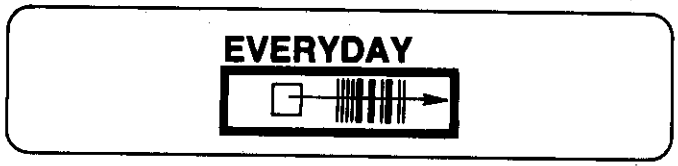


- When a timer bar code with 00 or 30 minutes is traced for the end time, the "Bee Bee Bee Bee Beeeeep" sound which indicates reading completion is heard. When subsequently tracing a "+MIN" bar code after tracing 00 or 30 to choose another minute setting, the reading completion sound will be heard again.

For Everyday Recording

① Turn on the Digital Scanner and trace the "CHANNEL" bar code.

② Trace the "EVERYDAY" bar code.

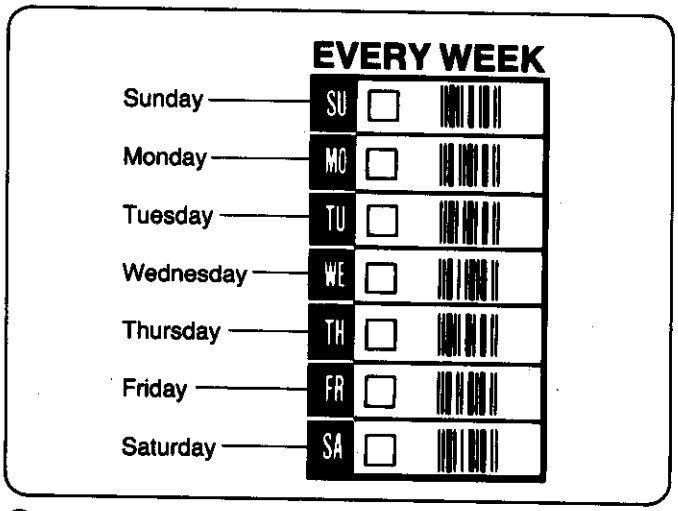


③ Trace the "START TIME" and then the "END TIME" bar codes, and transmit the data to the VTR.
- Everyday recording will be performed from that day on.
- If a "DATE" bar code is traced after tracing the "EVERYDAY" bar code, everyday recording will not be performed.

For Everyweek Recording

① Turn on the Digital Scanner and trace the "CHANNEL" bar code.

② Trace the bar code for the desired day of the week among the "EVERYWEEK" bar codes.

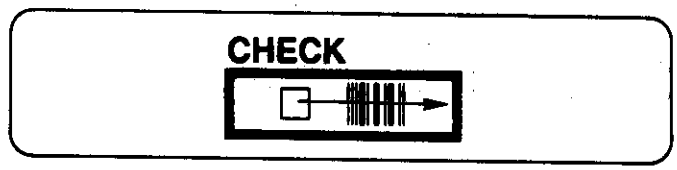


③ Trace the "START TIME" and then the "END TIME" bar codes, and transmit the data to the VTR.
- Everyweek recording will be performed from that week on.
- If a "DATE" bar code is traced after tracing the "EVERYWEEK" bar code, everyweek recording will not be performed.

To Confirm the Programme of a Timer Recording

To perform this operation, the VTR must be turned on or it must be in the timer recording standby mode (⏲ indication is lit).

① Trace the "CHECK" bar code.



② Perform transmission.
- After releasing the Transmit Button, the programmed data will be displayed for about 8 seconds (for about 25 seconds, if the ⏲ indication is not lit) on the Multi-Function Display.
- At every push of the Transmit Button, the timer programme number advances to the next higher number.

To Cancel a Programmed Timer Recording

To perform this operation, the VTR must be turned on but not be in any of the recording or playback operation modes, or it must be in the timer recording standby mode (⏲ indication is lit). To cancel a programmed timer recording, its data must be displayed on the Multi-Function Display. If they are no longer displayed, first, trace the "CHECK" bar code and perform transmission (several times, if necessary, until the programme you want to cancel is displayed).
Then, within 8 seconds (within 25 seconds, if the ⏲ indication is not lit):

① Trace the "CANCEL" bar code.

② Perform transmission.
- To programme a new timer recording, perform the programming from the beginning.

Cautions
- Treat the Programming Sheet with care. If the sheet gets dirty or scratched, the bar code reading may become impossible.
- Protect the Digital Scanner from strong shocks and vibration. Keep it away from water and places with high temperature and humidity.

Power Source for the Digital Scanner

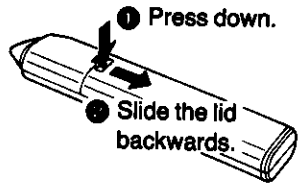
■ The Digital Scanner is powered by 4 IEC "R03" size batteries. The life of the batteries is about one year, however, it depends on the frequency of use. Inspect and if necessary, replace the batteries once a year.

CAUTION FOR BATTERY REPLACEMENT

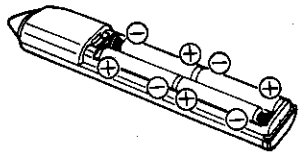
- Load the new batteries with their polarities (⊕ and ⊖) aligned correctly.
- Do not apply heat to batteries, or internal short-circuit may occur.
- If you do not intend to use the Digital Scanner for a long period of time, remove the batteries and store them in a cool and dry place.
- Remove spent batteries immediately and dispose of them.
- Do not use old and new batteries together. (Also never use an alkaline battery with a manganese battery.)

Load the batteries as follows:

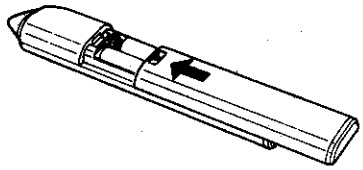
❶ Remove the lid on the rear of the scanner.



❷ Load 4 IEC "R03" size batteries as shown in the illustration with their polarities (⊕ and ⊖) aligned correctly.



❸ Replace the lid.



Recommendation

To save battery power, make sure to set the Power On/Off Switch to "OFF" after using the Digital Scanner. When the batteries are exhausted, the bar code reading can no longer be performed.

Specifications

Power Source:	DC 6 V
Dimensions:	20.5 (W)×31 (H)×157 (D) mm
Weight:	Approx. 45 g (without batteries)
Accessories:	4 pcs. IEC "R03" size batteries Programming Sheet

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka, Japan

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Printed in Japan
VQT2238-1

IMPORTANT

Your attention is drawn to the fact that recording of pre-recorded tapes or discs or other published or broadcast material may infringe copyright laws.

WARNING

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

NV-G21A: Australian model
NV-G21EA: New Zealand model

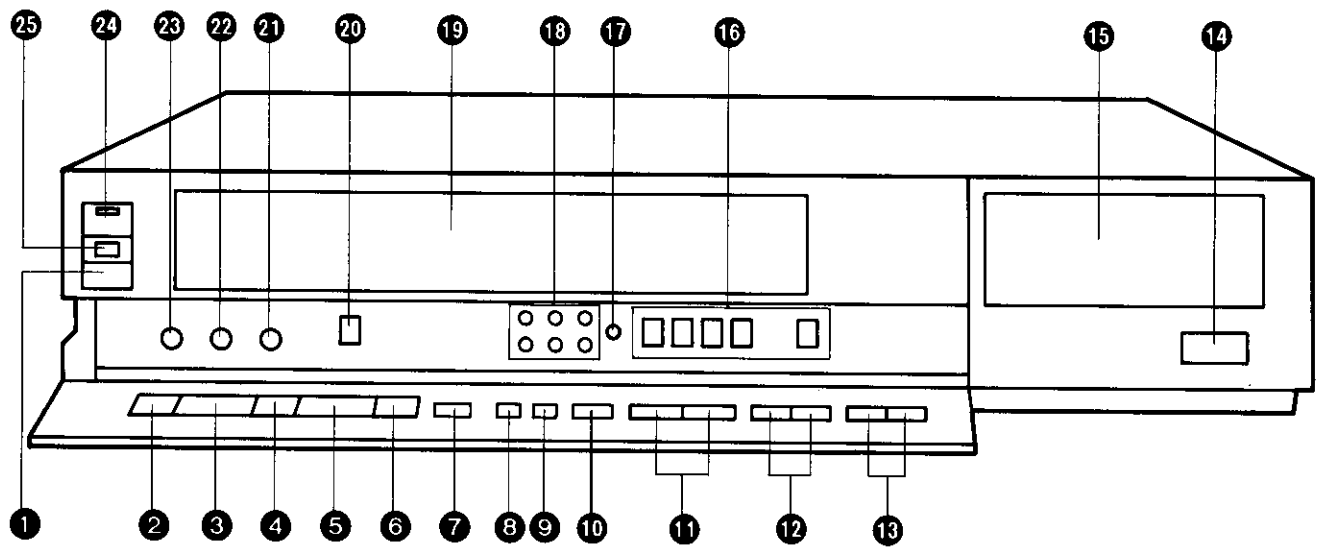
FOR YOUR SAFETY

■ **DO NOT REMOVE OUTER COVER.**
To prevent electric shock, do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

is the safety information.

CONTROLS AND COMPONENTS

FRONT



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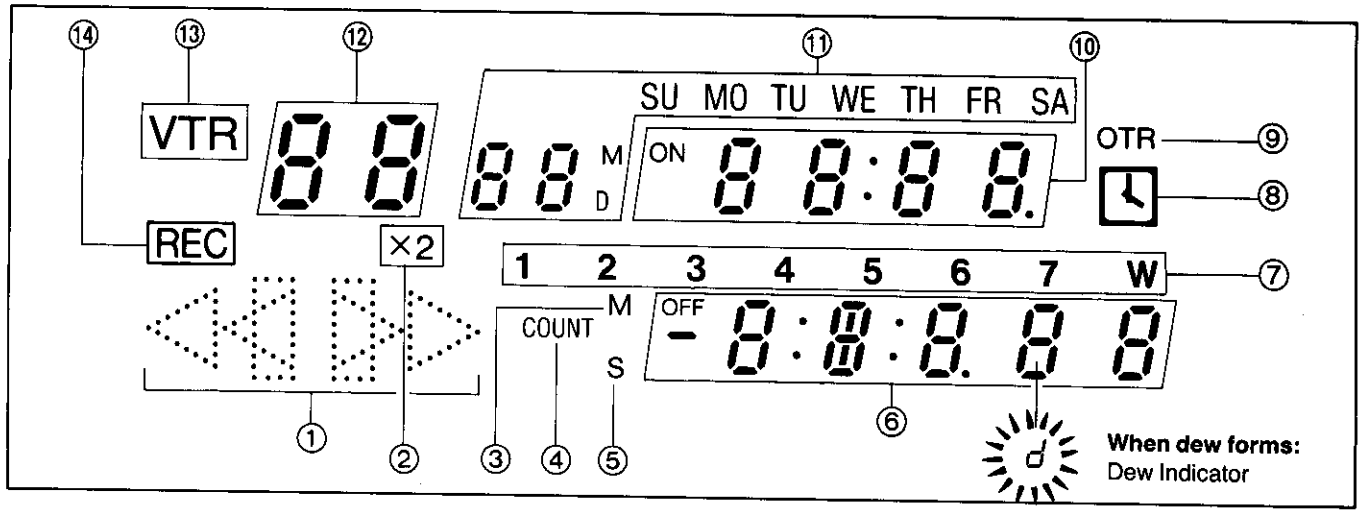
Multi Function Display



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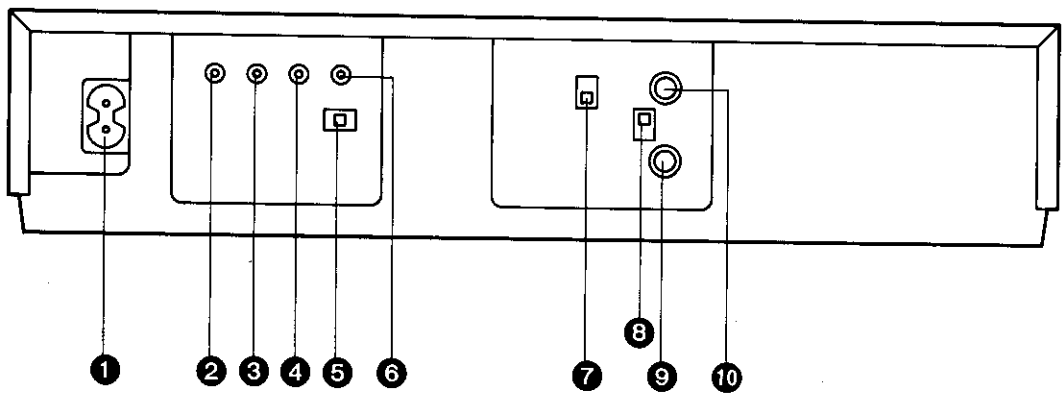
REAR



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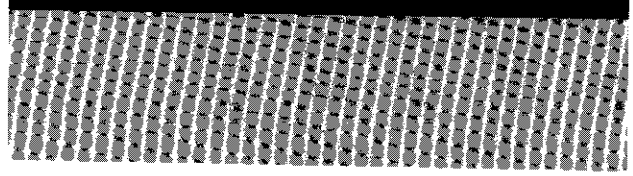


Slim Design and Front Loading System

This highly functional design allows loading the video cassette from the front, thus minimizing the space required for the VTR.

Multi-Function Display

Whenever an operation button is pressed, the activated function is immediately indicated on this easy-to-see display. It shows you at a glance, in what operation mode the VTR is functioning.

Infra-red Remote Controller

The Infra-red Remote Controller unit allows operation of various functions from the comfort of your favourite viewing position.

Picture Sharpness Control

With this control, the contours of the playback picture can be made sharper or softer.

Super Still, Super Still Advance and Double Super Fine Slow Playback

Super Still, Super Still Advance and Double Super Fine Slow Playback are possible with superb picture quality with minimum noise and jitter.

Super OTR Function (One-Touch Timer Recording)

This convenient function makes it possible to easily programme the VTR for recording of TV programmes with immediate start or with start within 24 hours and with the starting time and ending time precisely to the minute, and the VTR will automatically turn itself off when the recording ends.

Digital Scanner

This Digital Scanner lets you programme timer recordings by tracing the corresponding bar codes on the supplied Programming Sheet and then transmitting the data to the VTR.

Auto Operation

This VTR automatically turns itself "ON" when a video cassette is inserted even if it was turned off. When the tab of the inserted cassette is broken out, playback will start automatically. Also, even if the VTR is off, when the Eject Button is pressed, it automatically turns itself on to eject the cassette tape and turns itself off again.
When a video cassette tape with a broken out tab is inserted and the VTR is switched over to recording, OTR and timer recording, the cassette tape will be automatically ejected.
When the tape reaches its end (except during OTR and timer recording), it will automatically rewind to the beginning.
If the VTR On/Off button is pressed during the rewind mode including Auto Rewind, the VTR will eject the cassette and turn itself off when rewinding is completed.

1-Month Calendar Timer

The clock/timer of the NV-G21 is programmed with the calendar up to the end of 2001. Therefore it knows exactly what day of the week it is on any given date. Programming of as many as 8 timer recordings is possible up to one month in advance.

Lap Time Counter

The new Lap Time Counter is a great improvement over the approximate counter systems of conventional VTRs. It gives you an exact reading of the elapsed tape time in hours, minutes and seconds, and makes it easy to calculate the tape time left on a cassette.

Reception of up to 16 TV Stations

The built-in tuner in this video recorder allows pretuning of 16 TV stations. So this VTR can accommodate virtually any increase in available TV programmes in the future.

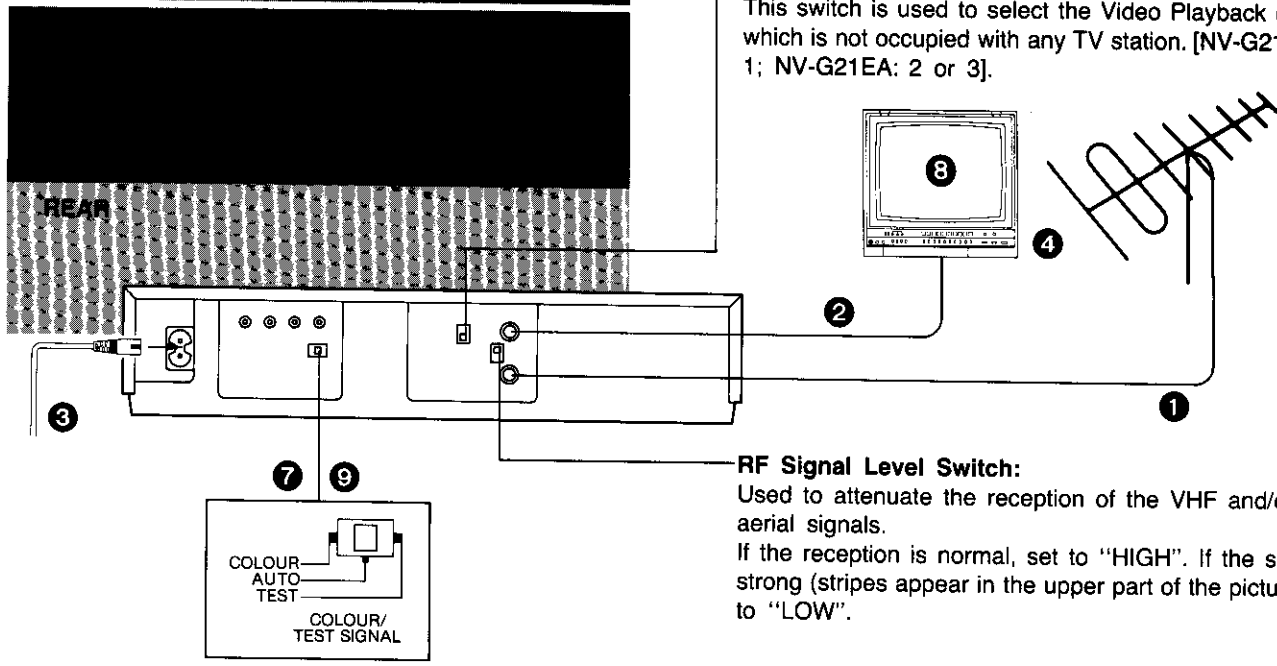
HQ (High Quality) Picture System

Video recorders carrying the HQ symbol mark feature the new VHS High Quality Picture System. This system assures complete compatibility with VTRs that use the conventional VHS system.

INSTALLATION, TUNING THE TV SET TO THE VIDEO PLAYBACK CHANNEL

NV-G21A:
FOR YOUR SAFETY
Install any external aerial to AS 1417.1.

Video Playback Channel Selector
This switch is used to select the Video Playback channel which is not occupied with any TV station. [NV-G21A: 0 or 1; NV-G21EA: 2 or 3].



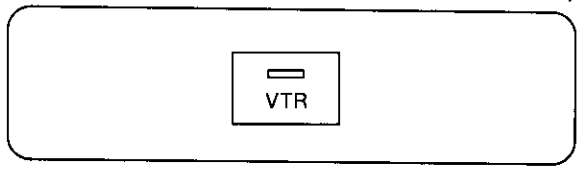
RF Signal Level Switch:
Used to attenuate the reception of the VHF and/or UHF aerial signals.
If the reception is normal, set to "HIGH". If the signal is strong (stripes appear in the upper part of the picture), set to "LOW".

Connection to a TV Set

1. Connect the external aerial to the RF Input Socket on the VTR.
2. Connect the aerial terminal on your TV set to the RF Output Socket on the VTR with the supplied DIN-DIN Coaxial Cable.
3. Connect the AC Mains Lead (Supplied) to the AC Mains Socket of the VTR, and a mains outlet.

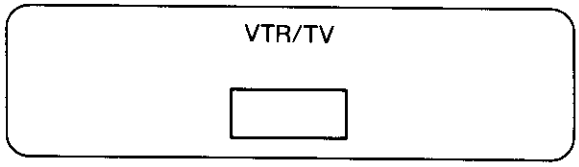
Video Playback Channel

4. Turn the TV set on.
5. Press the VTR On/Off Switch to turn the VTR On.
(FRONT PANEL)



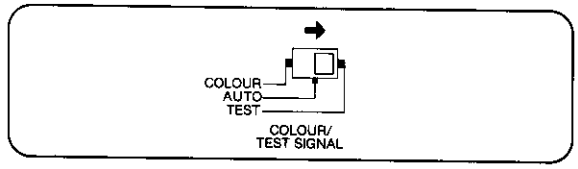
- The indicator will light up.

6. Set the VTR/TV Selector to "VTR".
(FRONT PANEL)

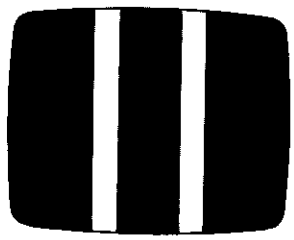


- VTR Indicator will appear in the Multi-Function Display.

7. Set the Colour Mode/Test Signal Switch to "TEST".
(REAR PANEL)



8. Tune the selected programme position (channel) of the TV set to the VHF channel shown below for your model. Confirm on the TV set that the received test pattern is as shown below.
NV-G21A VHF channel 0 or 1*
NV-G21EA VHF channel 2 or 3



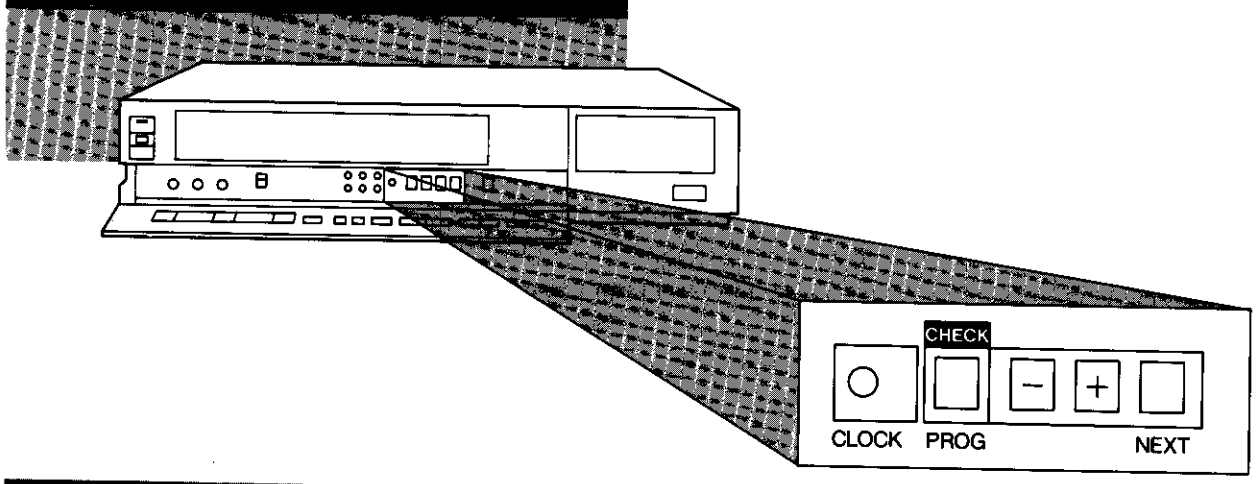
NV-G21A only
*In some areas channel 0 may be used by local TV station. In this case switch to channel 1.

9. Set the Colour Mode/Test Signal Switch to "AUTO". Your TV is now ready to receive the RF output signal from the VTR.

- If, during recording or playback, the colour is not satisfactory, it can be stabilized by setting Colour Mode/Test Signal Switch to COLOUR.

SETTING THE CLOCK TO THE PRESENT TIME

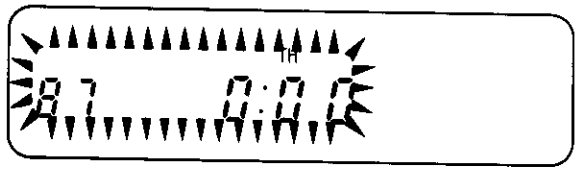
The built-in digital clock employs the 24-hour system.



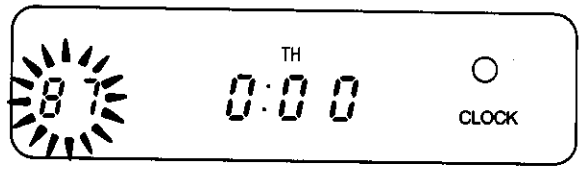
For Example: Set the clock for October, 8, 1988. Saturday, 12:35.

- Connect the VTR to the mains outlet.
- Press the VTR On/Off Switch to turn the VTR On.
- Open the Controls cover.

❶ When connecting this VTR to the mains or after a long power failure, both the date and time indications flash.



❷ Press the Clock Button to start the date and time setting.



❸ Press the (+) or (−) Button to set the year.

❹ Press the Next Button.

❺ Press the (+) or (−) Button to set the month.

❻ Press the Next Button.

❼ Press the (+) or (−) Button to set the day.

❽ Press the Next Button.

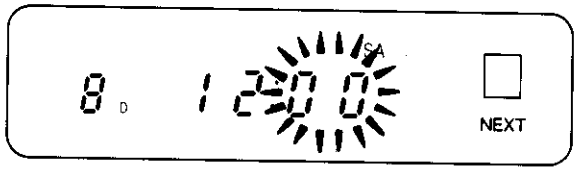
The present time is displayed continuously even if the VTR is turned off.

Power Back-up System:

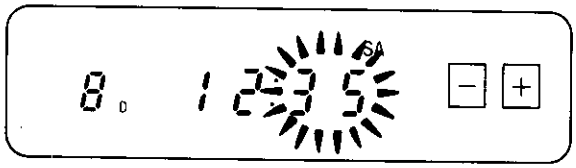
In case of a power failure, the back-up system retains the present time memory for about 60 minutes. However, it takes more than one hour for the back-up circuit to become operational, after the VTR has been connected to the mains.

⑨ Press the (+) or (−) Button to set the hour.

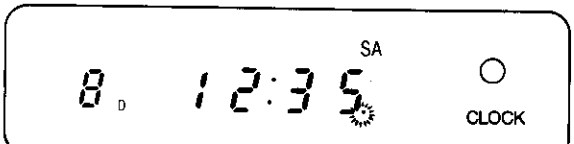
⑩ Press the Next Button.



⑪ Press the (+) or (−) Button to set the minute.



⑫ Press the Clock Button when the present time becomes exactly 12:35'00".



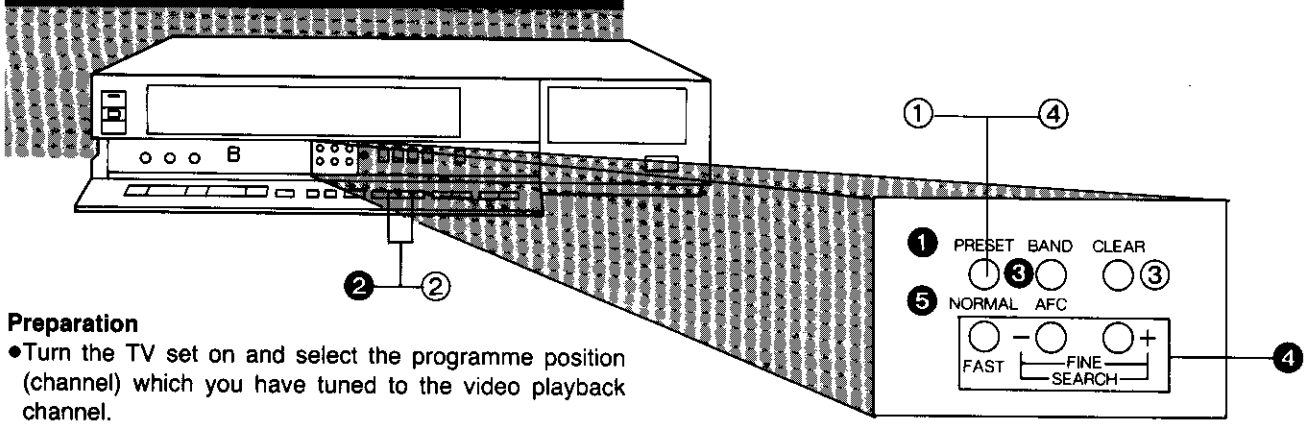
○ CLOCK	This Button is used to start and finish the time setting.
CHECK □ PROG	Unnecessary for Time setting
YEAR Mode +	1987→1988...2000→2001
YEAR Mode −	1987→2001...1989→1988
MONTH Mode +	1→2→3 .....10→11→12
MONTH Mode −	1→12→11.....4→3→2
DAY Mode	JAN. MAR. MAY. JUL. AUG. OCT. DEC.
DAY Mode +	1→2→3...29→30→31
DAY Mode −	1→31→30...4→3→2
	APR. JUN. SEP. NOV.
+	1→2→3.....29→30
−	1→30→29.....4→3→2
	FEB.
+	1→2→3...27→28 or 29
−	1→29 or 28→27...3→2
HOUR Mode +	0→1→2→3...21→22→23
HOUR Mode −	0→23→22.....3→2→1
MINUTE Mode +	00→01→02 .....57→58→59
MINUTE Mode −	00→59→58→57...02→01
□ NEXT	YEAR → MONTH → DAY → HOUR → MINUTE

SETTING THE TUNER IN THE VTR

The tuner in the VTR makes it possible to receive TV broadcasts and to record these programmes without having to turn on the TV set. The reception channels in the TV bands shown on the right can be received.

	VHF		UHF
	I	III	U
NV-G21A	0–5	5A–11	21–69
NV-G21EA	1–3	4–11	21–69

●The tuner in the VTR can be preset up to 16 stations.



Preparation

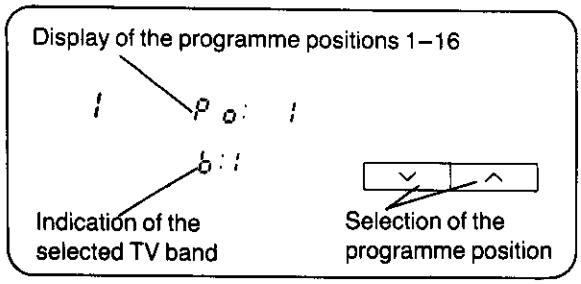
- ●Turn the TV set on and select the programme position (channel) which you have tuned to the video playback channel.
- ●Press the VTR On/Off Switch to turn the VTR On.
- ●Set the VTR/TV Selector to "VTR".

Tuning Procedure

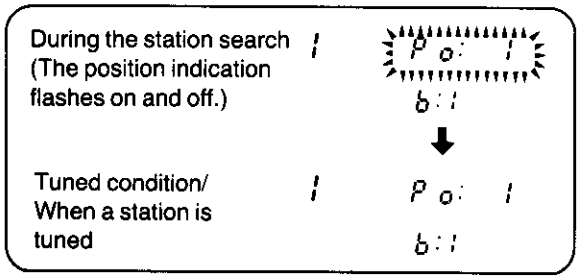
❶ Press the PRESET/NORMAL Button.
The indication on the Multi-Function Display changes from the clock indication to the position indication.

❷ Press the Channel Up or Down Button to select a programme position (channel) which you want to tune to a TV station.

❸ Press the BAND/AFC Button to select "I", "III", or "U" Position.



❹ Press the SEARCH (+) or (−) Button until the picture of the desired station on your TV is satisfactory.
- ●If the Search (+) or (−) Button is pressed while pressing the Fast Button, the stations will change quickly.



- ●The tuned station is automatically memorized.

Repeat steps ❷~❹ for each channel you want to tune to a

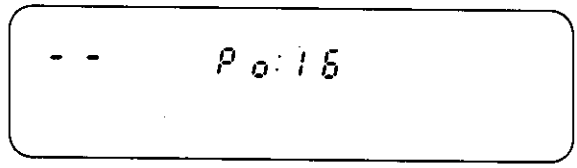
❺ Press the PRESET/NORMAL Button again.
The indication on the Multi-Function Display changes to the clock indication.

Blanking of Unoccupied Programme Positions

① Press the PRESET/NORMAL Button.

② Press the Channel Up or Down Button to select a programme position (channel) which you want to tune to a TV station.

③ Press the CLEAR Button ("__" will be displayed in the Programme Position Indication).



- ●Repeat steps ② and ③ for any programme positions on which no stations are to be tuned. Afterwards, these programme positions will be skipped during Up/Down selection of the programme position on the VTR.

④ Press the PRESET/NORMAL Button again.

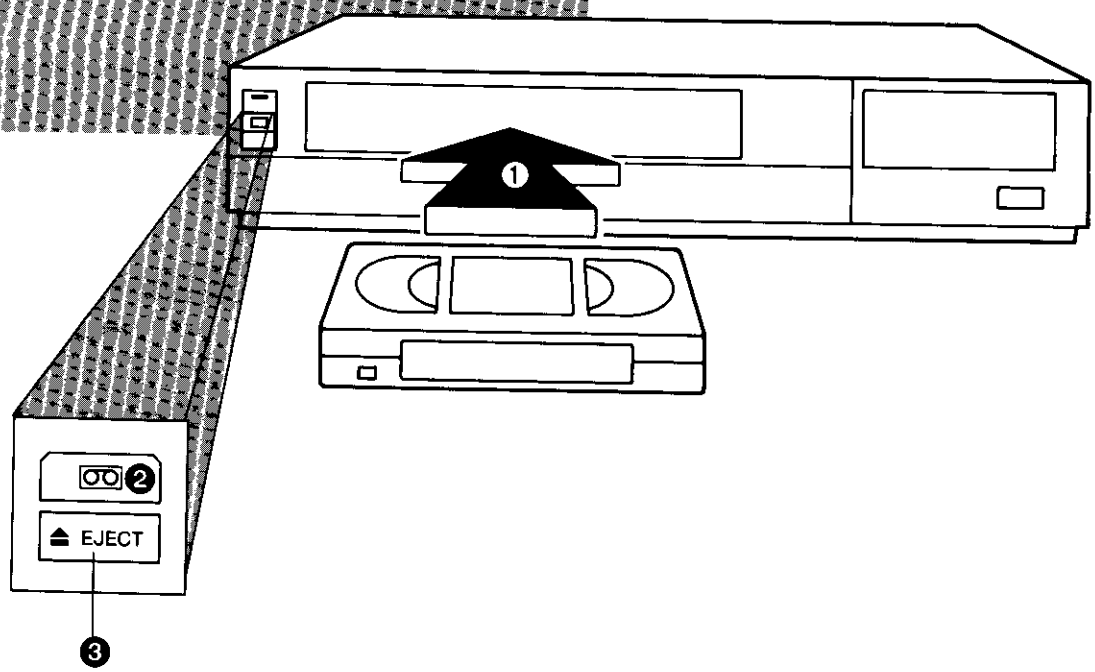
Fine Tuning Procedure

If fine tuning is necessary, for example for a weak station which is close to a strong station:

1. Make sure that the PRESET/NORMAL Button is in the Off condition, i.e. the Multi-Function Display shows the present time.
2. Press the SEARCH "−" or "+" Button to obtain the best tuning condition.

- ●To return the tuning to its former state, press the BAND/AFC Button.

THE VIDEO CASSETTE



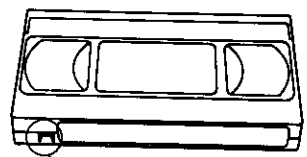
Inserting a Video Cassette (Auto Operation)

❶ Insert the video cassette as shown. The VTR will be turned on automatically and the cassette will automatically be drawn into the VTR.

❷ When a video cassette is inserted, the "⊡" indicator will light up.

Note:

- When a video cassette with broken out erasure prevention tab (for example a pre-recorded tape) is inserted, playback will start immediately.
- Use VHS video cassette tapes only.



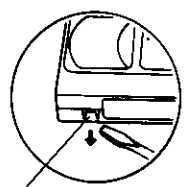
Erasure Prevention Tab

Removing a Video Cassette

❸ Press the Eject Button (⏏).

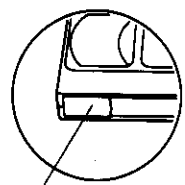
Even if the VTR is off, the VTR automatically turns itself on when the Eject Button is pressed, and the cassette tape is ejected. After that, the VTR will turn itself off again.

To prevent accidental erasure



Break off the tab with a screwdriver.

To record again

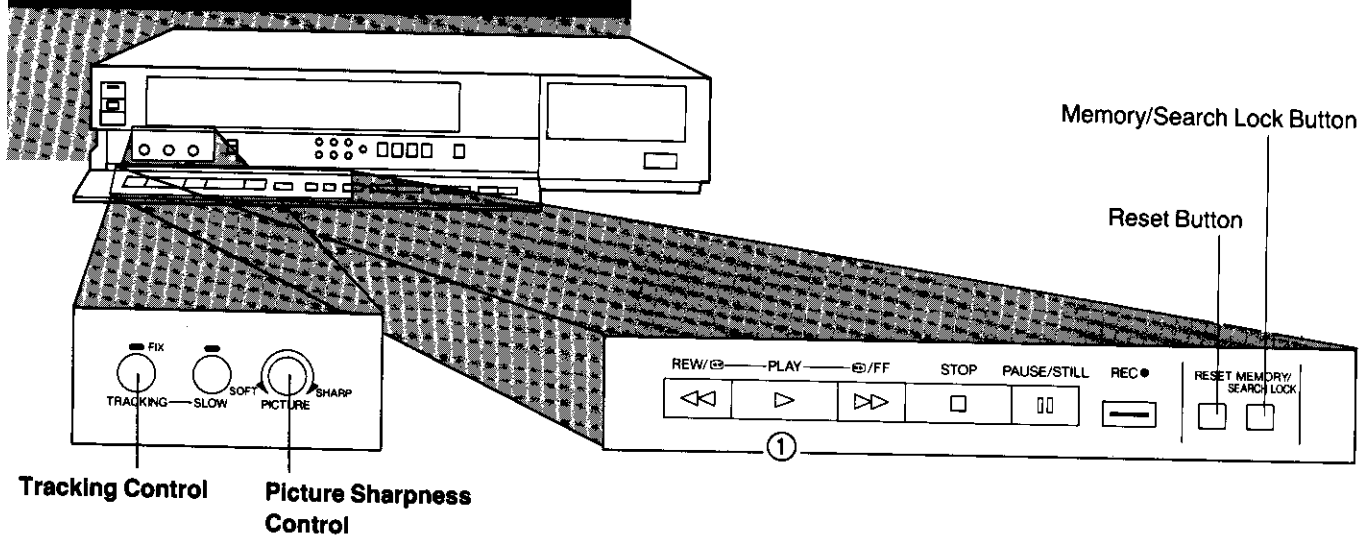


Cover the hole with adhesive tape.

PLAYBACK

Preparation

- Make sure that the Timer Record Button is set to "Off".
- Insert a recorded video cassette.
  When a video cassette is already inside the VTR, press the VTR On/Off Switch to turn it on.
- Turn the TV set on and select the video playback channel.
- Make sure that the Edit Switch is set to Off.



Tracking Control

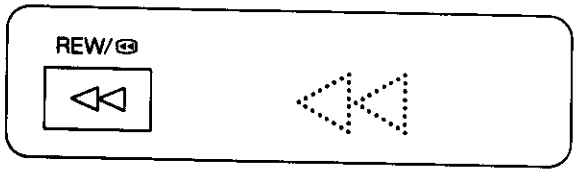
Picture Sharpness Control

Auto Operation

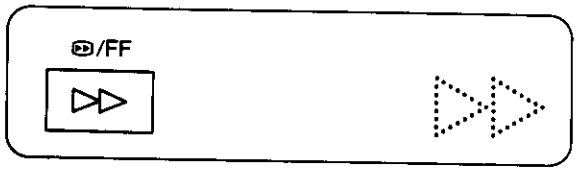
When a video cassette which has the erasure prevention tab removed is inserted, playback will start automatically.

Rewind and Fast Forward

Press the Rewind ◀◀/Review ⏪ Button to rewind the tape.

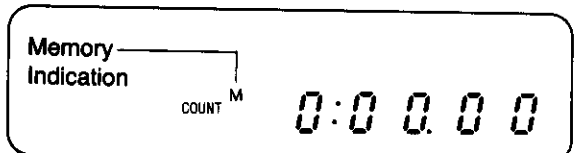


Press the Fast Forward ▶▶/Cue ⏩ Button to wind the tape forward rapidly.



Memory Function

The Memory function makes it simple and fast to find a certain position on the tape later again, simply by pressing the Reset Button at that position to set the tape counter to "0:00.00" and by pressing the Memory/Search Lock Button. During Rewind or Fast Forward, the tape will then stop at approximately the desired position.



Lap Time Counter

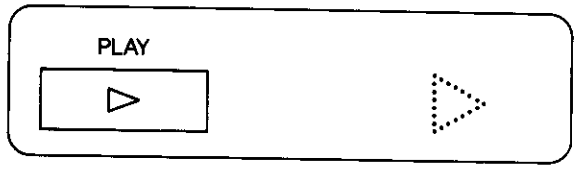
It shows the elapsed recording or playback time.

The "–" indication will appear when the tape is rewound further than the tape counter position "0:00.00".

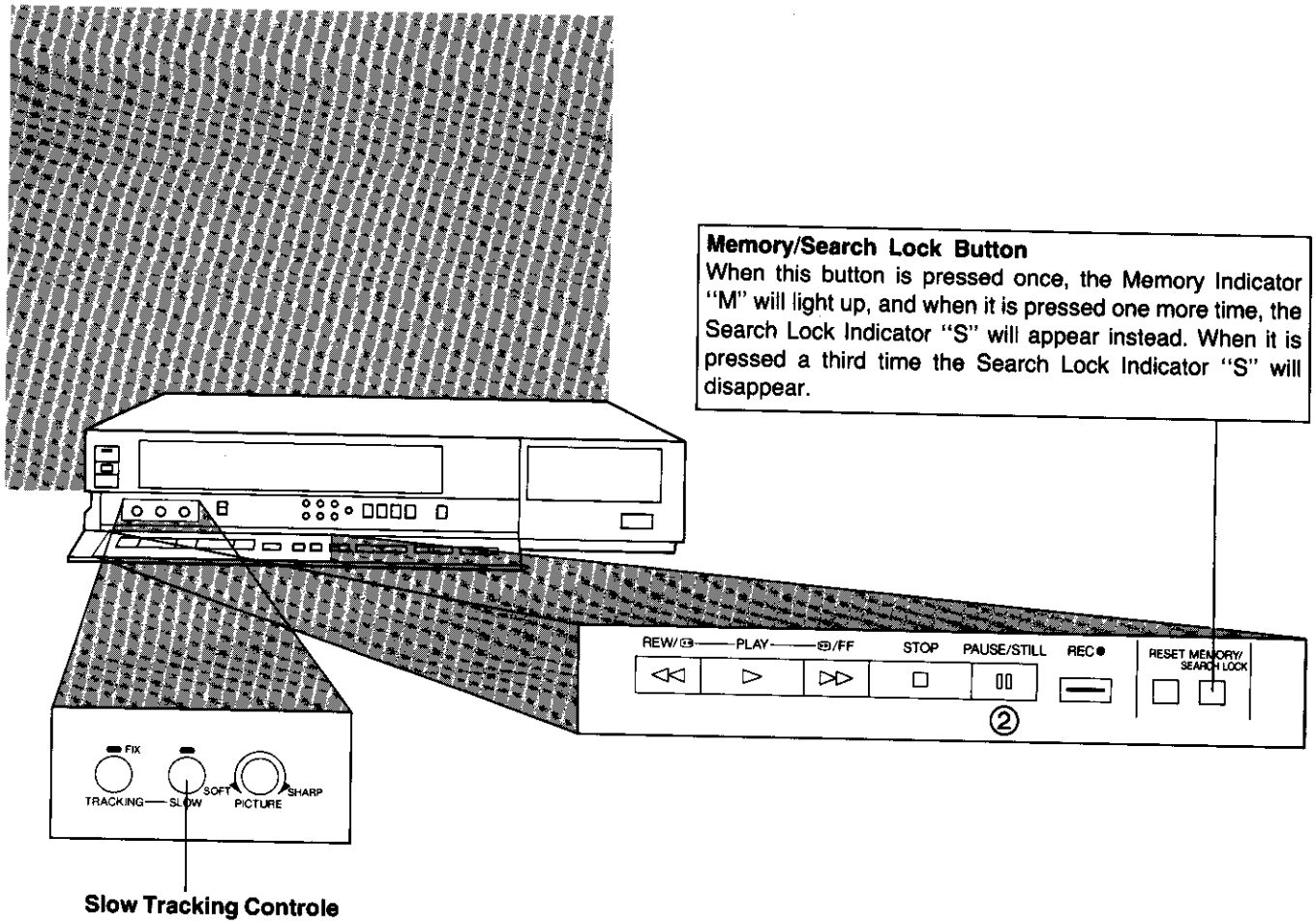
If the figures on the Tape Counter do not change during Fast Forward, Rewind or any of the playback functions, this means that nothing is recorded on that tape section.
The tape counter is automatically reset to "0:00.00" every time a tape is ejected.

① Normal Playback

Press the Play Button (▶).



- Adjust the Tracking Control on the VTR if the image is partially obscured by bands of noise.
- Control the picture as you like with the Picture Sharpness Control (sharp or soft contours).

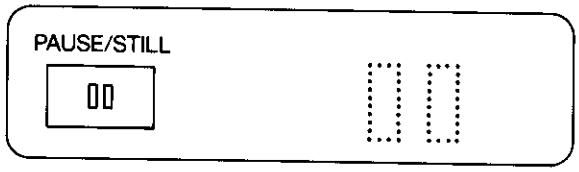


Memory/Search Lock Button
When this button is pressed once, the Memory Indicator "M" will light up, and when it is pressed one more time, the Search Lock Indicator "S" will appear instead. When it is pressed a third time the Search Lock Indicator "S" will disappear.

Slow Tracking Controle

② Super Still Playback

When the VTR is in the playback mode, press the Pause/Still Button (▮▮) to view a super still-picture. To continue the normal playback, press this button again.



③ Double Speed Playback (Remote Controller only)

When the VTR is in the playback mode, press the Double Speed Playback Button on the Infra-red Remote Controller to view a double speed playback picture. To continue the normal playback, press the Play Button.

④ Super Still Advance Playback (Remote Controller only)

Press the Still Advance Button (▮▶) on the Remote Controller unit while the VTR is in the still playback mode. Each time you press this button, the still-picture will advance one frame.

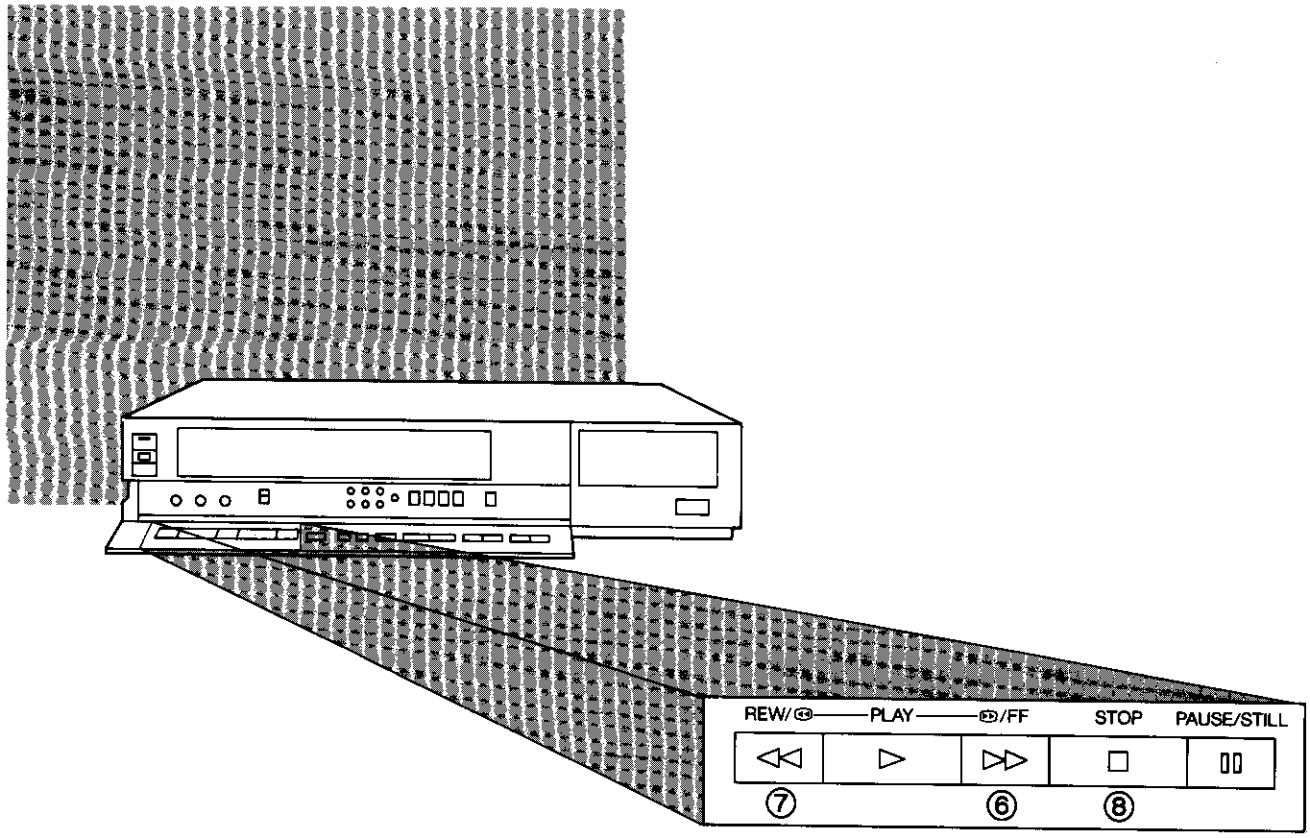
⑤ Double Super Fine Slow Playback (Remote Controller only)

During normal playback, the Slow-motion playback can be activated by pressing the Slow Button (▮▸) on the Remote Controller unit. Slow-motion playback between 1/25 and 1/5 of the normal speed can then be obtained by using the Slow (+) or (−) Button.

- Press the Play Button (▶) to continue the normal playback.
- If the Slow playback operation continues for more than 5 minutes, the VTR automatically switches over to the stop mode.
- While playing back a tape in the Super Still or Double Super Fine Slow playback mode on a TV set equipped with an automatic vertical hold control, the picture may shake vertically. In this case, set the TV set's vertical hold (AUTO/MANUAL) selector to the "MANUAL" position, and adjust the vertical hold control.

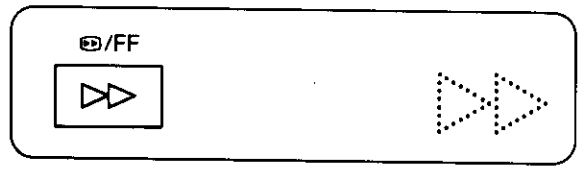
Slow Tracking Control

- When noise bars appear during Super Still, Super Still Advance or Double Super Fine Slow playback, switch over to slow playback and adjust the Slow Tracking Control to reduce the noise bars.
- It may not be possible to eliminate the noise bars completely.



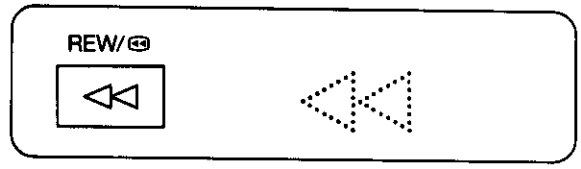
⑥ Cue Playback

When the Fast Forward ▶▶/Cue ▶▶ Button is kept pressed while the VTR is in the playback mode, the tape will be played back in forward direction at about 5 times normal playback speed.



⑦ Review Playback

When the Rewind ◀◀/Review ◀◀ Button is kept pressed while the VTR is in the playback mode, the tape will be played back in reverse direction at about 5 times normal playback speed.



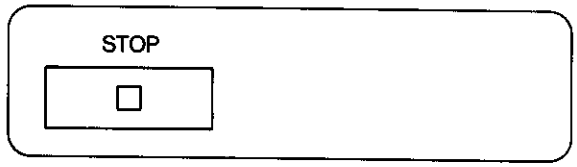
To make possible Cue or Review playback without having to keep the respective button pressed, first press the Memory/Search Lock Button so that the Search Lock Indicator "S" appears in the Multi-Function Display, and then press the Fast Forward ▶▶/Cue Button ▶▶ or the Rewind ◀◀/Review ◀◀ Button.

To switch the VTR back to normal playback, press the Play Button (▶).

- When Cue or Review playback continues for more than 10 minutes, the VTR switches back to the normal playback mode.

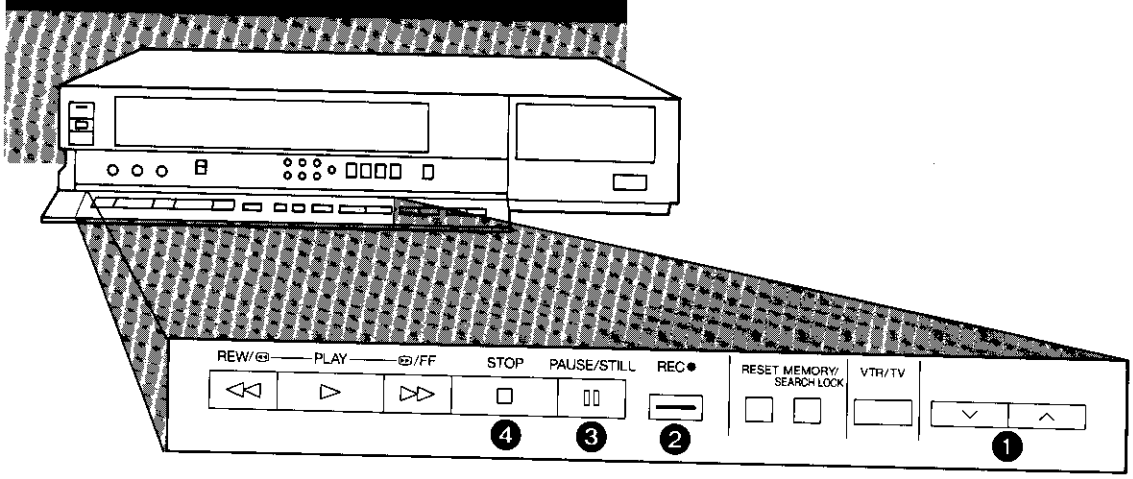
⑧ To Finish Playback

Press the Stop Button (■) to stop the playback.



- The sound will be played back only during normal playback.
- If you leave the VTR in the still playback mode for more than 5 minutes, the VTR will automatically switch over to the Stop mode, to protect the tape and the video heads.
- Noise which takes the form of horizontal bars appears on the TV in the Cue and Review playback modes. This is not an indication of a malfunction.
- The top of the picture may become distorted in the Cue or Review mode. This is not an indication of a malfunction.
- When the picture rolls vertically in the Cue or Review mode, adjust the vertical hold control on the TV set.

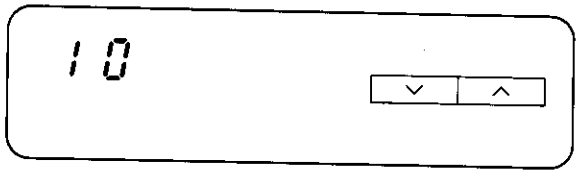
RECORDING



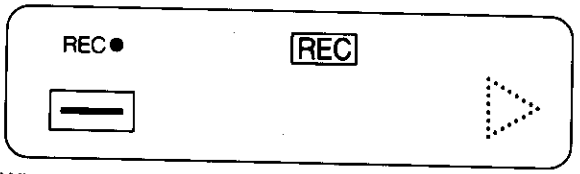
Preparation

- Insert a video cassette with the erasure prevention tab intact.
  When a video cassette is already inside the VTR, press the VTR On/Off Switch to turn it on.
- Make sure that the Timer Record Button is set to "Off".
- Reset the Tape Counter to "0:00.00".
- Set the VTR/TV Selector to "VTR".

❶ Select on the VTR, the programme position (channel) to be recorded. In order to confirm proper reception, turn on the TV set and select the video playback channel.



❷ Press the Record Button (●).

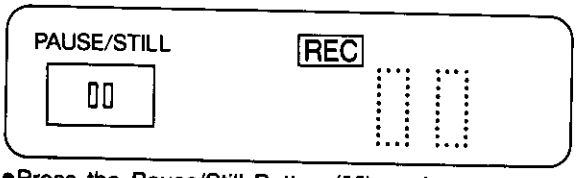


When a video cassette with broken out tab is inserted, it will be automatically ejected.

- During recording, the programme position (channel) on the VTR cannot be changed.

If You Wish to Avoid Recording Unwanted Material

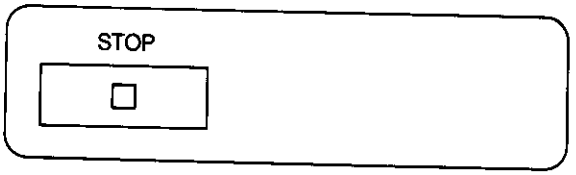
❸ Press the Pause/Still Button (❚❚) to stop the tape temporarily.



- Press the Pause/Still Button (❚❚) again to continue the recording.
- If you leave the VTR in the pause mode for more than 5 minutes, the VTR will automatically switch over to the stop mode to protect the tape and the video heads.

To Finish the Recording

❹ Press the Stop Button (■).



Recording One TV Programme While Watching Another

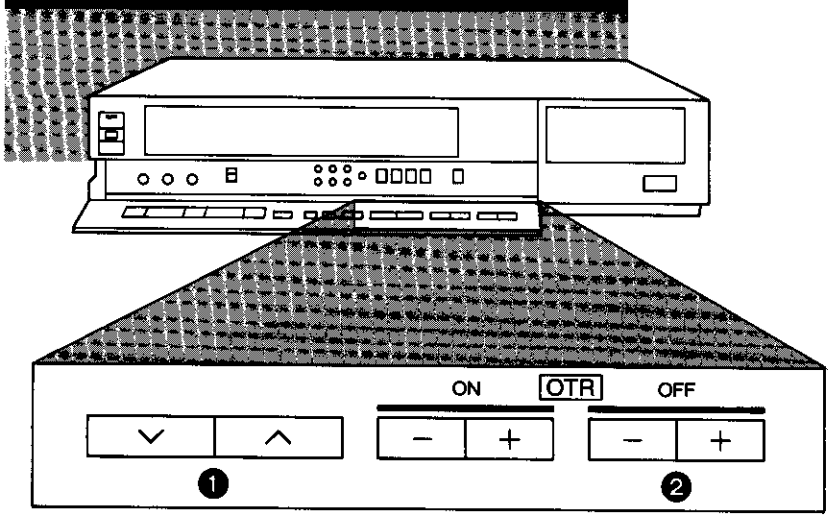
You can watch one programme on the TV while recording another on the VTR.

1. Record (following steps ❶ and ❷).
2. Set the VTR/TV Selector to "TV".
3. Select the desired programme position (channel) on your TV set.

- Ensure all cables from the Video Input and Audio Input sockets are disconnected before starting the recording. If they remain connected, it is impossible to record TV programmes.

SUPER OTR FUNCTION (ONE-TOUCH TIMER RECORDING)

This convenient function makes it possible to easily programme the VTR for recording of TV programmes with immediate start or with start within 24 hours and with the starting time and ending time precisely to the minute, and the VTR will automatically turn itself off when the recording ends.

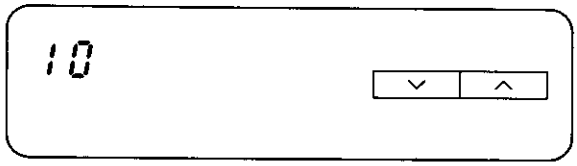


Preparation

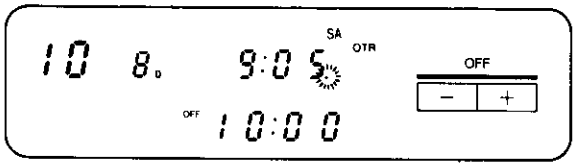
- Insert a video cassette with the erasure prevention tab intact.
  When a video cassette is already inside the VTR, press the VTR On/Off Switch to turn it on.
- Make sure that the clock shows the present time correctly.
- Set the VTR/TV Selector to "VTR".

OTR Function with Immediate Start

❶ Select the programme position (channel) to be recorded.



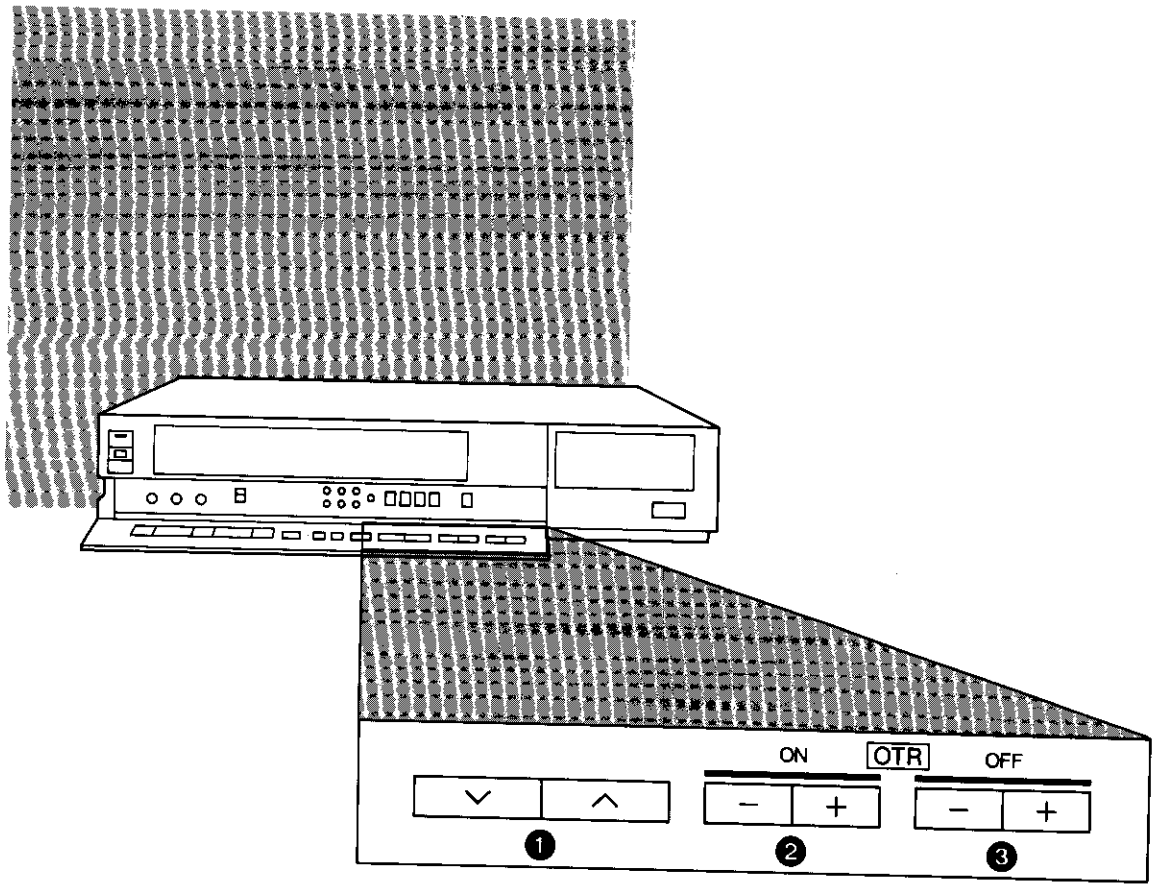
❷ Set the desired ending time of the OTR by pressing OTR Off (+) or (−) Button. (For example, the present time is 9:05, and the ending time of the TV programme is 10:00.)



When the tab of the inserted video cassette is broken out, it will be automatically ejected.

- The "OTR" indicator will be displayed.
- The VTR will automatically switch off, when the OTR is completed. To turn the VTR on again, press the VTR On/Off Switch.

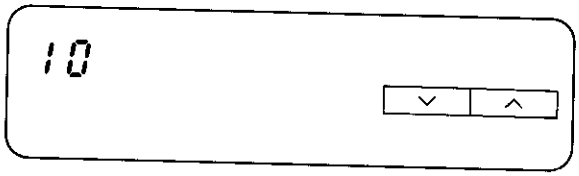
- When the tape reaches its end during an OTR recording the VTR will turn itself off.
- Ensure all cables from the Video Input and Audio Input sockets are disconnected before starting the recording. If they remain connected, it is impossible to record TV programmes.



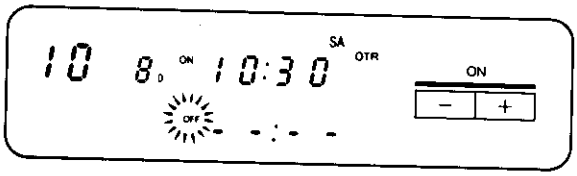
OTR Function with Deferred Start

It is possible to programme an OTR recording for a TV programme which will start immediately or within the next 24 hours.
(For example, OTR recording of a TV programme broadcast from 10:30 to 11:00.)

❶ Select the programme position (channel) to be recorded.

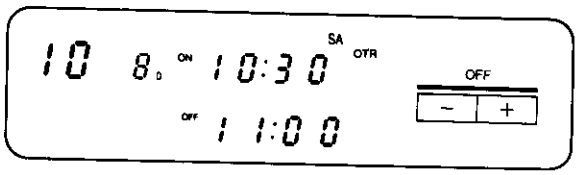


❷ Press the OTR On (+) or (−) Button to set the OTR starting time to 10:30.



- The "OTR" indicator will be displayed.

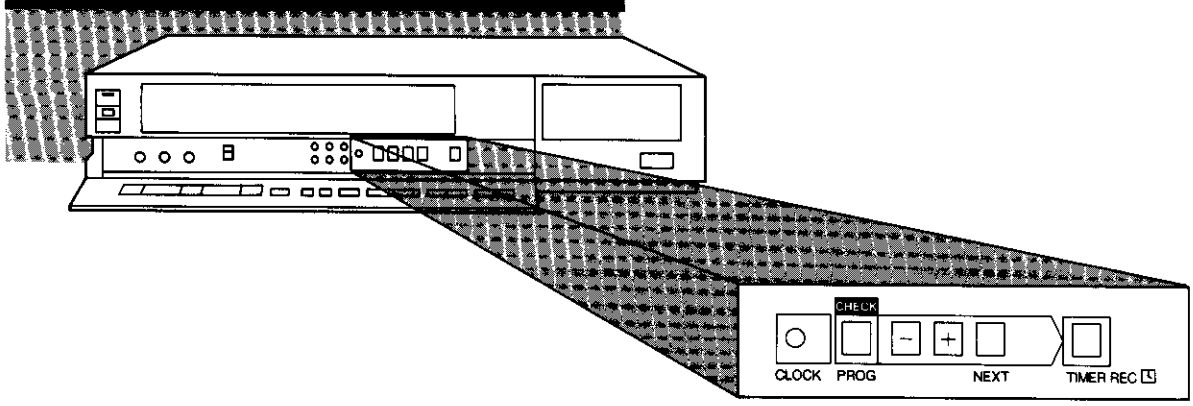
❸ Press the OTR Off (+) or (−) Button to set the OTR ending time to 11:00.



- After selecting the delay time for the OTR start in step ❷, the OTR Off (+) or (−) Button must be pressed within 8 seconds to select the OTR ending time, otherwise the selected starting time will be cancelled.
- The VTR will automatically switch off, when the OTR is completed. To turn the VTR on again, press the VTR On/Off Switch.

- Make sure that the OTR Function (One-Touch Timer Recording) does not overlap a programmed timer recording. An OTR always takes precedence over a timer recording.
- If you want to confirm the present time or the tape counter position before the programmed OTR is performed, or to check the tape counter position during the OTR, press the Check/Programme Button. To return the display to the previous indication, press this button once more.
- It is possible to change the OTR starting time before the recording starts.
- It is possible to perform any VTR operation (except Timer Recording) before the recording starts.
- It is possible to change the OTR ending time even during the recording.
- To interrupt an OTR, press the VTR On/Off Switch to turn the VTR off.
- When quickly and repeatedly pressing the OTR On (+) or (−) Button or the OTR Off (+) or (−) Button, the corresponding time indication changes in 1-minute steps. When it is kept pressed, the indication changes in 10-minute steps.

TIMER RECORDING



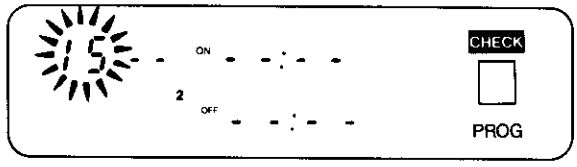
Preparation

- Make sure that the clock shows the present time correctly.
- Insert a video cassette with the erasure prevention tab intact.
  When a video cassette is already inside the VTR, press the VTR On/Off Switch to turn it on.
- Make sure that the Timer Record Button is set to "Off".

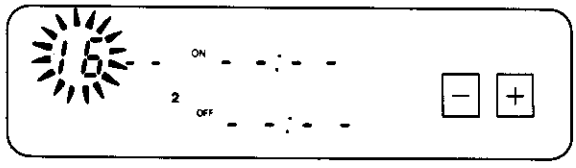
For Example:

Programming a timer recording for a TV programme that will be broadcast on Wednesday, October 26, from 20:00 to 22:45, on programme position (channel) 16, on timer programme number 2. (Present date=October 8, 1988)

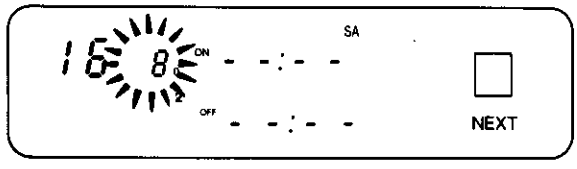
❶ Press the Check/Programme Button to select the next unoccupied timer programme number.



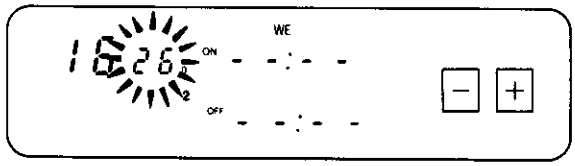
❷ Press the (+) or (−) Button to select the programme position (channel) on which the TV programme will be broadcast.



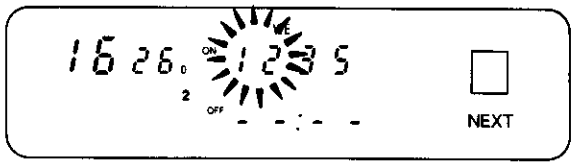
❸ Press the Next Button.



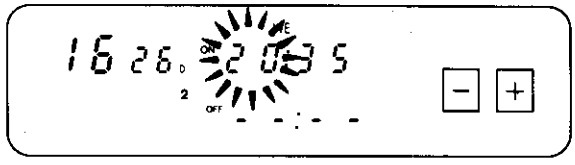
❹ Press the (+) or (−) Button to set the date.

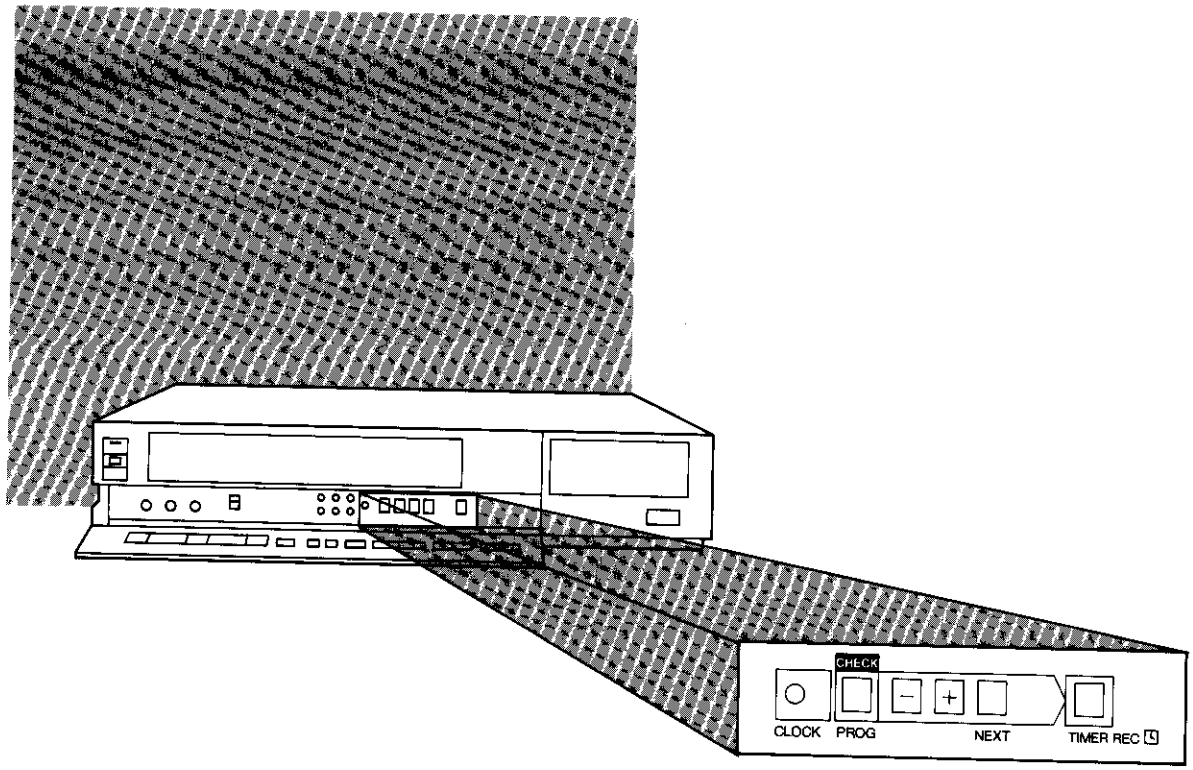


❺ Press the Next Button.

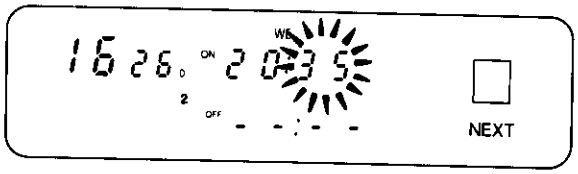


❻ Press the (+) or (−) Button to select the hour of the starting time of the TV programme.

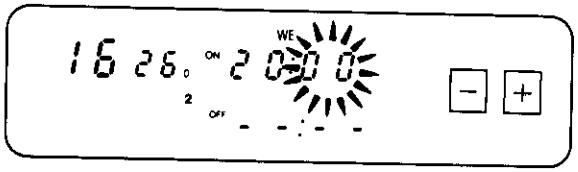




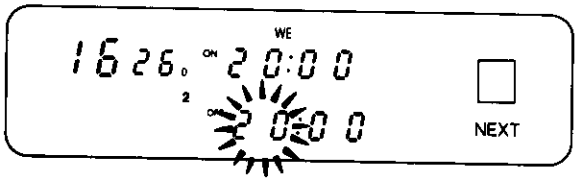
❼ Press the Next Button.



❽ Press the (+) or (−) Button to select the minute of the starting time of the TV programme.



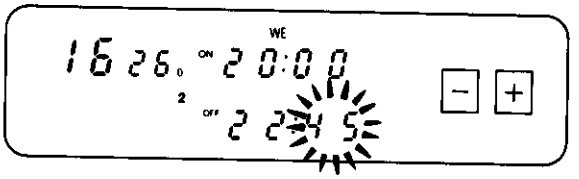
❾ Press the Next Button.



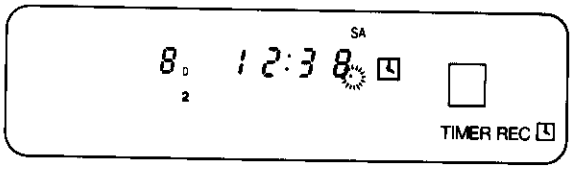
❿ Press the (+) or (−) Button to select the hour of the end time of the TV programme.

⓫ Press the Next Button.

⓬ Press the (+) or (−) Button to select the minute of the end time of the TV programme.



⓭ Press the Timer Record Button.

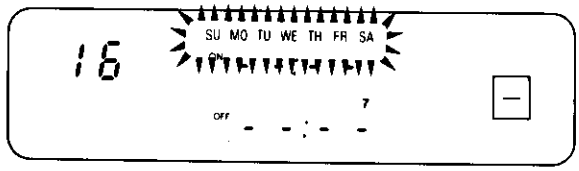


For Everyday Recording

For example:
Programme time for timer recording every day from 20:00–22:45 on timer programme number 7.
Programming for everyday recording can be made on any of the timer programme numbers 1–7.

Execute the operation steps ❶ to ❸ as described on page 18.

❹ Press the (−) Button once, so that all day indication will appear together.

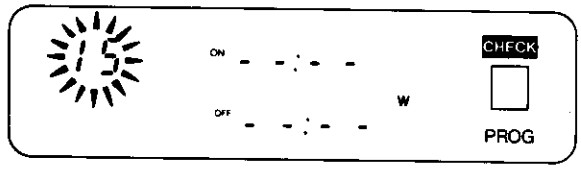


Perform the operation steps ❺ to ⓭ described on pages 18 and 19.

For Everyweek Recording

For example:
Programming a timer recording for a TV programme that is broadcast every week on Sunday, from 20:00 to 22:45.

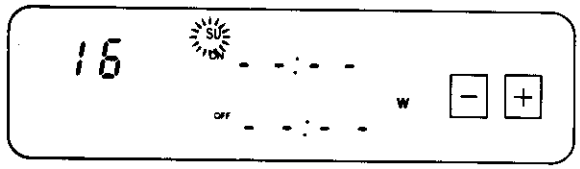
① Press the Check/Programme Button 8 times, so that "W" indication will appear.



② Press the (+) or (−) Button to select the programme position (channel) on which the TV programme will be broadcast.

③ Press the Next Button.

④ Press the (+) or (−) Button to select the day of the week, on which the programme will be broadcast.



Perform the operation steps ❺ to ⓭ described on pages 18 and 19.

To Confirm the Programme of a Timer Recording

—Make sure that the VTR is turned on.
—Make sure that the Timer Record Button is set to "On".

Select the programme number to be checked, by repeatedly pressing the Check/Programme Button.
The preset channel and start and ending times of the timer recording will be indicated for about 8 seconds.

To Cancel a Timer Recording

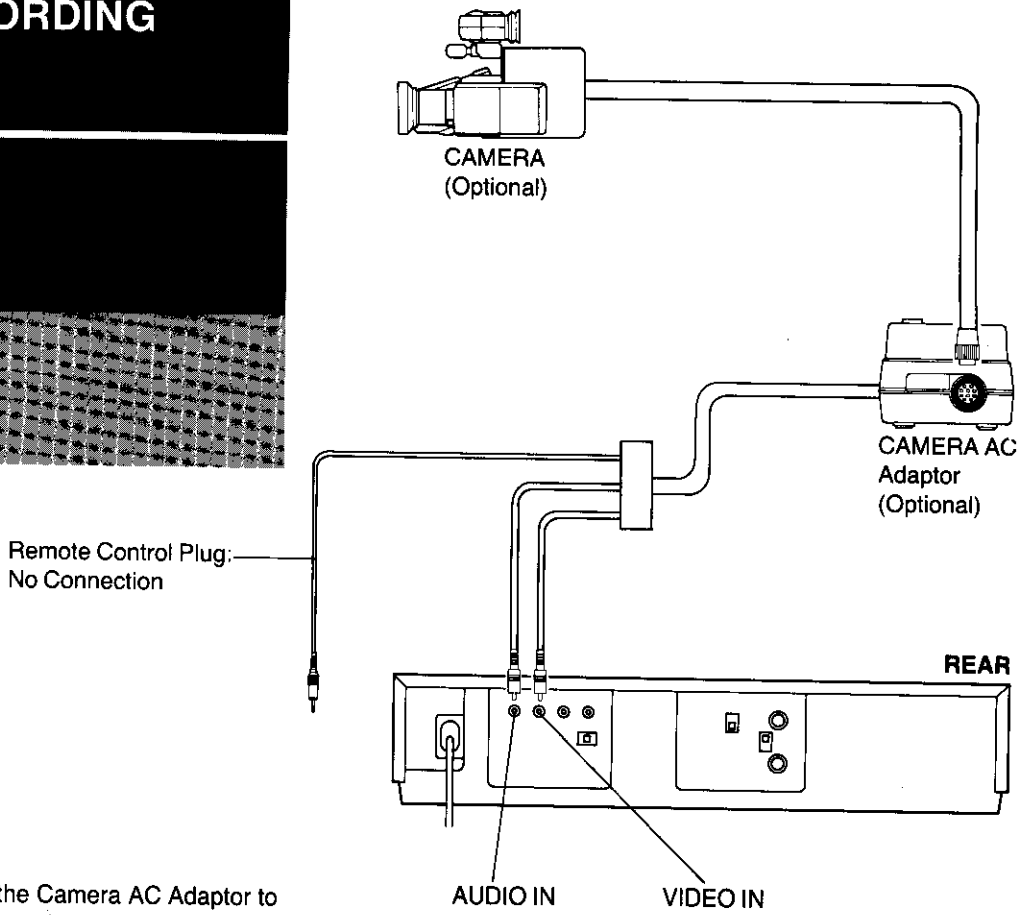
Make sure that:
—the VTR is turned on.
—the Timer Record Button is set to "Off".

❶ Press the Check/Programme Button repeatedly, until the number of the timer programme that you want to cancel is displayed.

❷ Press the (+) and (−) Button simultaneously for more than 3 seconds.

- Ensure all cables from the Video Input and Audio Input sockets are disconnected before starting the recording. If they remain connected, it is impossible to record TV programmes.
- It is impossible to confirm programmes of timer recordings while an OTR is being performed.
- To turn the VTR on and use it for playback or recording before the timer recording is performed, turn the Timer Record Button Off.
- When the Timer Record Button is set to "On" but no video cassette is inserted or no timer recording has been programmed, the Timer Recording Indicator ⏲ will flash to inform that the timer recording cannot be performed.
- After the programmed timer recording has been made, set the "Timer Record" Button to "Off", otherwise the VTR cannot be operated normally.
- During recording, the programme position (channel) on the VTR cannot be changed.
- When you want to watch TV after setting a timer recording, select the desired channel on the TV set.
- To cancel a timer recording during recording, set the Timer Record Button to "Off".

CAMERA RECORDING

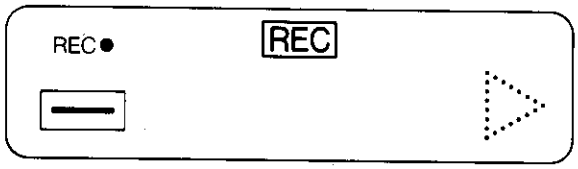


Preparation

- Connect the video camera via the Camera AC Adaptor to the VTR as shown in the illustration above.
- Insert a video cassette with erasure prevention tab intact. When a video cassette is already inside the VTR, press the VTR On/Off Switch to turn it on.
- Make sure that the Timer Record Button is set to "Off".
- Set the VTR/TV Selector to "VTR".

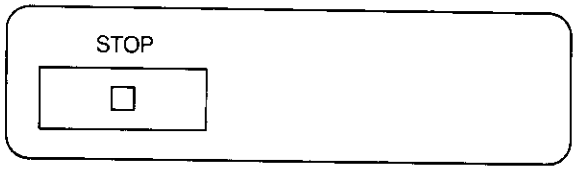
❶ Turn the Camera AC Adaptor on and make the necessary adjustments on the camera.
Refer to the operating instructions of the camera you are using.

❷ Press the Record Button (●) on the VTR to start recording.



Avoid recording unwanted material:
Press the Pause/Still Button (❚❚) of the VTR, and the recording will stop temporarily. To restart recording, press the Pause/Still Button (❚❚), again.

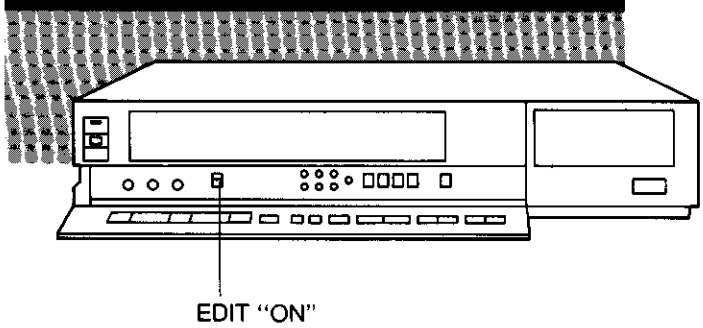
❸ Press the Stop Button (■) on the VTR to stop recording.

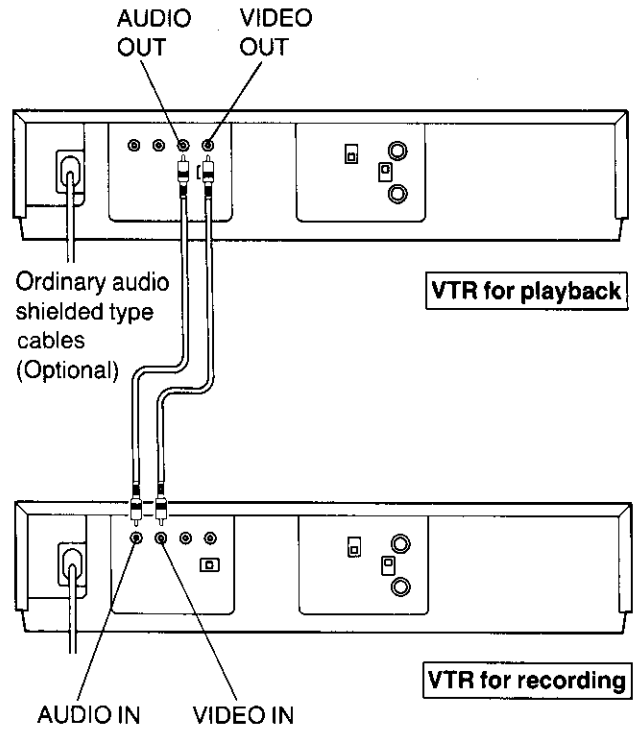


- If you leave the VTR in the pause mode for more than 5 minutes, the VTR will stop automatically to protect the tape and the video heads.
- Even if the video camera is equipped with video recorder remote control functions, this VTR can not be remotely-controlled from the camera.
- Disconnect all cables from the Video Input and Audio Input sockets after finishing camera recording.
  If they remain connected, it is impossible to record TV programmes.

DUBBING (COPYING)

Dubbing (copying) from one video cassette to another.



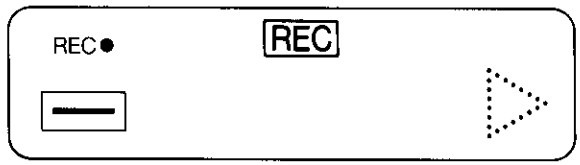


Preparation

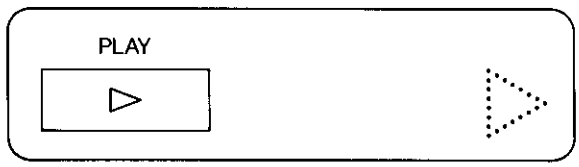
- Press the VTR On/Off Switches to turn both VTRs On.
- Make the connection between the two VTRs as shown above.
- Make sure that the Edit Switches of both the recording and playback VTRs (if equipped) are in the "On" position. Set these switches to "Off" for ordinary use of the VTRs.

❶ Place the recorded cassette in the playback VTR and a blank video cassette with the erasure prevention tab intact in the recording VTR.

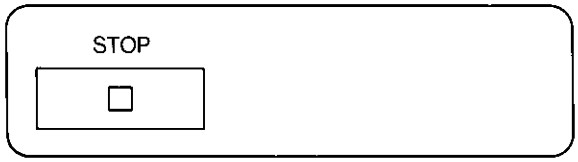
❷ Press the Record Button (●) on the recording VTR.



❸ Press the Play Button (▶) on the playback VTR.



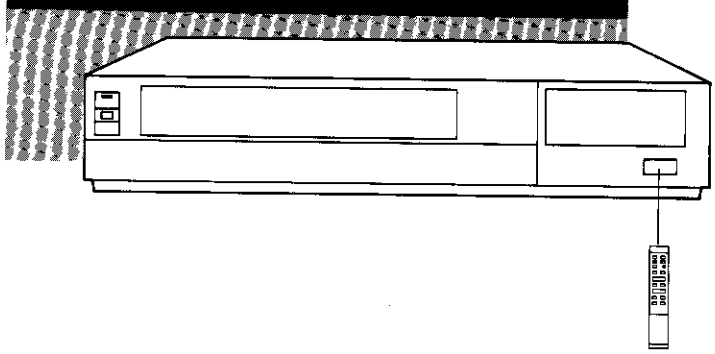
❹ Press the Stop Button (■) on both VTRs to stop the dubbing.

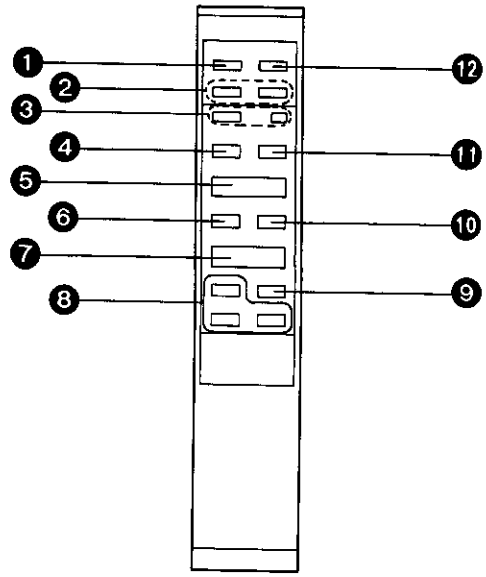


- To assure smooth, noiseless cuts when interrupting the recording, always use the Pause/Still Button (❚❚).
- To obtain smooth cuts when starting the recording from the stop mode:
  1. Play back the last part of the previously recorded material to confirm its ending point, and then press the Pause/Still Button (❚❚).
  2. Press the Record Button (●). (The VTR is still in the pause mode.)
  3. To start recording, press the Pause/Still Button (❚❚) again.
- The picture quality of a re-recorded tape is not as good as that of the original.
- Ensure all cables from the Video Input and Audio Input sockets are disconnected after finishing the recording. If they remain connected, it is impossible to record TV programmes.

INFRA-RED REMOTE CONTROLLER

Part Number: VEQ0507





1 VTR On/Off Switch
For turning the VTR on and off.

2 Programme Position (Channel) Selector Buttons

3 Record Buttons (●)
To start recording, press the both buttons simultaneously.

4 Pause/Still Button (❚❚)

5 Stop Button (■)

6 Rewind ◀◀/Review ⏪ Button
When this button is kept pressed during playback, the VTR changes over to the Review playback mode.

7 Play Button (▶)

8 Slow Button (▷)
Press the Slow Button for slow-motion playback at 1/10 of normal speed. The slow playback speed can be varied between 1/25 and 1/5 of normal speed by using the "+" and "−" Buttons.
Note:
If the VTR is left in the slow playback mode for more than 5 minutes, the VTR will automatically switch over to the stop mode, to protect the tape and the video heads.
- Adjust the Slow Tracking Control if necessary.

9 Double Speed Playback Button (×2)

10 Fast Forward ▶▶/Cue ⏩ Button
When this button is kept pressed during playback, the VTR changes over to the Cue playback mode.

11 Still Advance button (❚▷)

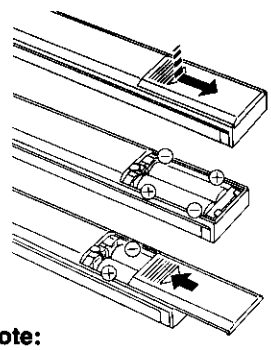
12 VTR/TV Selector

Power Source for the Infra-red Remote Controller

■ The Infra-red Remote Controller is powered by two IEC "R6" size batteries. The life of the batteries is about one year, however, it depends on the frequency of use. Inspect and if necessary, replace the batteries once a year.

CAUTION FOR BATTERY REPLACEMENT
- Load the new batteries with their polarities (⊕ and ⊖) aligned correctly.
- Do not apply heat to batteries, or internal short-circuit may occur.
- If you do not intend to use the Remote Controller for a long period of time, remove the batteries and store them in a cool and dry place.
- Remove spent batteries immediately and dispose of them.
- Do not use an old and a new batteries together. (Also never use an alkaline battery with a manganese battery.)

Load the batteries as follows:



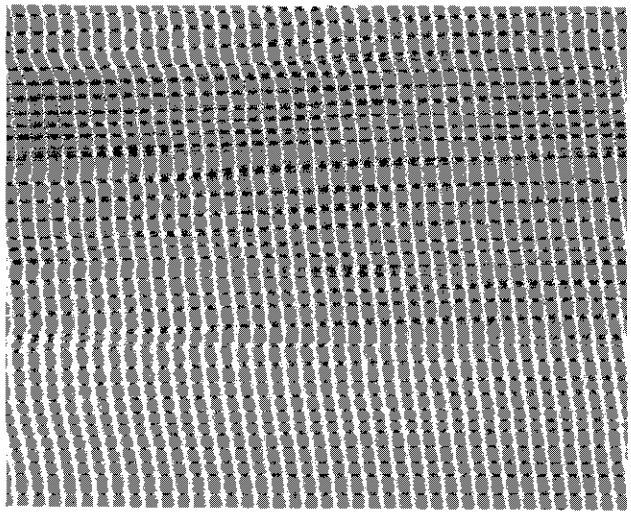
1. Remove the battery compartment lid.
2. Place two batteries in the battery compartment as indicated inside the battery compartment.
3. Replace the lid.

Note:
- The infra-red beam should be transmitted directly at the Infra-red Remote Control Receiver on the front of the VTR.
- Direct sunlight may interfere with the beam.
- The lightsensing angle of the Infra-red Remote Control Receiver window in the VTR is about 60°.
- The unit should be used within a range of about 7 meters from the front of the VTR.

BEFORE REQUESTING SERVICE

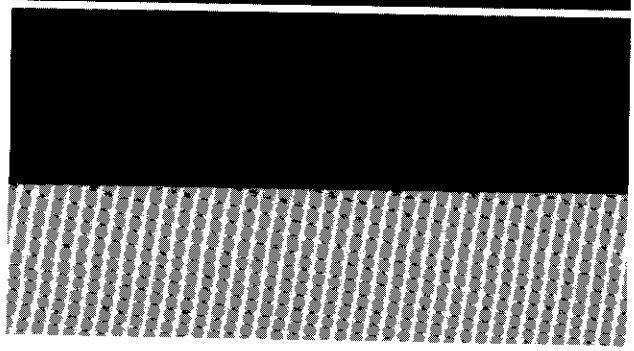
Before requesting service, check the following points once again.

SYMPTOM	CAUSE	REMEDY
Power doesn't turn on.	Mains lead is not connected.	Connect mains lead to mains outlet.
	The "Timer Record" Button is set to "On".	Set the "Timer Record" Button to "Off".
Power is on but unit doesn't operate.	Dew condensation inside the VTR.	Wait until the Dew Indicator "$\mathcal{J}$" goes off.
	Safety devices are operating.	Turn off the VTR On/Off Switch, disconnect mains cord from outlet, then reconnect mains cord to mains outlet and turn on the VTR On/Off Switch again.
TV programmes cannot be recorded.	Connection of aerial lead is not correct.	Connect aerial lead correctly.
	Reception channel is not properly tuned.	Tune reception channel.
	Cables are connected to the Video Input and Audio Input Sockets.	Disconnect all cables from the Video Input and Audio Input Sockets.
OTR Function (One-Touch Timer Recording) cannot be performed.	Clock is flashing "0:00".	Set clock to present time.
Unattended timer recording cannot be performed.	Recording start or recording stop time setting is incorrect.	Set recording start and recording stop time correctly.
	The "Timer Record" Button is set to "Off".	Set the "Timer Record" Button to "On".
	Clock shows incorrect time.	Adjust clock to present time.
	Clock is flashing at "0:00".	Set clock time and perform timer setting.
Unattended timer recording cannot be programmed.	The One-Touch Timer Recording is now being performed.	Programme the timer recording after the One-Touch Timer Recording has finished.



SYMPTOM	CAUSE	REMEDY
If you attempt to carry out Recording, Timer Recording, or OTR, the cassette will be automatically ejected.	Accidental erasure prevention tab on the cassette is broken out.	Cover tab hole with adhesive tape.
Playback picture is not reproduced.	Connection with television set is not correct.	Connect the VTR to the television set correctly.
	TV set is not tuned to the video playback channel.	Tune TV set to the video playback channel of the VTR.
Playback picture is not in colour. Playback picture has large amounts of "snow".	Reception channel was not adjusted correctly during recording.	Readjust reception channel correctly.
	TV set is not properly tuned to the video playback channel of the VTR.	Properly tune the TV set to the video playback channel of the VTR.
	The video heads are clogged with dirt.	Consult qualified service personnel.
	The video heads are abraded.	Consult qualified service personnel.
	Tape is old and/or defective.	Use new tape.
Remote Controller does not work.	Remote Controller is not being pointed at Infra-red Receiver window on the VTR.	Point the Remote Controller at Infra-red Receiver Window on the VTR.
	Distance is too far.	Use the Remote Controller within 7 m from the VTR.
	An obstacle is between Remote Controller and VTR.	Remove obstacle.
	Batteries are exhausted.	Replace batteries.
	Battery polarities (+, −) are reversed.	Insert batteries correctly.

CAUTIONS



Avoid Sudden Changes in Temperature

If the VTR is suddenly moved from a cold place to a warm place, moisture may form on the tape and inside the VTR. In this case, the Dew Indicator "$\mathcal{d}$" will flash on and off and the VTR will not operate.

Humidity and Dust

Avoid places where there is high humidity or much dust, which may cause damage to internal parts.

Do Not Obstruct the Ventilation Holes

The ventilation holes prevent abnormal increase of temperature. Do not block or cover these holes. Especially avoid soft materials such as cloth or paper.

Keep away from High Temperature

Keep the VTR away from extreme direct heat such as direct sunlight, heating radiators, or closed automobiles.

Keep Magnets Away

Never bring a magnet or magnetized object near the VTR because it will adversely affect the performance of the VTR.

No Fingers or Other Objects Inside

Touching internal parts of this VTR is dangerous, and may cause serious damage to the VTR. Do not attempt to disassemble the VTR. There are no user serviceable parts inside.

Keep Water Away

Keep the VTR away from flower vases, tubs, sinks, etc. CAUTION: If liquids are spilled into the VTR, serious damage could occur. If you spill any liquid into the VTR, consult qualified service personnel.

Cleaning the VTR

Wipe the VTR with a clean, dry cloth. Never use cleaning fluid, or other chemicals. And do not use forced air to remove dust.

Stacking

Place the VTR in a horizontal position, and do not place anything heavy on it.

Video Head Clogging

The video heads are the means by which the recorder places picture signals on the tape during recording, and reads picture signals from the tape during playback. If these heads become dirty and clogged from long use, the signals can no longer be recorded correctly, and the playback picture will be distorted accordingly. This is the case, for example, if during the playback of a tape which you know to have good quality, the sound is reproduced normally, but no picture is seen, or the picture is greatly distorted. If this is the case, have the recorder checked by qualified service personnel.

If Dew Condensation Forms in the VTR

Condensation may form in the VTR if:

- The VTR is in a room where the heater has just been turned on.
- The VTR is in a room with steam or high humidity.
- The VTR is brought from cold surroundings into a well-heated room.
- When the VTR is suddenly brought from cool surroundings, such as an air-conditioned room or car, to a place which is hot and humid.

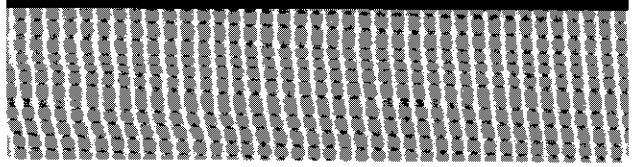
When dew forms in the VTR: (Refer to page 5)

The Dew Indicator "$\mathcal{d}$" on the Multi-Function Display will flash on and off and all the function buttons are made non-operational to protect the tape and the video heads.

When the Dew Indicator flashes, wait until this indicator disappears.

- If dew condensation forms inside the VTR while the VTR On/Off Switch is off, it will turn on automatically and the Dew Indicator will flash on and off. As soon as the dew condensation has been dissolved, the VTR will turn itself off again.

SPECIFICATIONS



NV-G21A, EA

Power Source:	NV-G21A: 240 V AC 50–60 Hz NV-G21EA: 230 V AC 50–60 Hz
Power Consumption:	Approx. 22 watts

Video Recording System:	2 rotary heads, helical scanning system
Tape Speed:	23.39 mm/sec.
Tape Format:	VHS tape
Record/Playback Time:	240 min. with NV-E240
FF/REW Time:	Less than 5.5 min. with NV-E180

VIDEO

Television System:	CCIR: 625 lines, 50 fields, PAL colour signal		
Modulation System:	Luminance: FM azimuth recording Colour signal: converted subcarrier phase shift recording		
Input Level:	VIDEO IN (PHONO);	1.0 Vp-p,	75 ohm, unbalanced
Output Level:	VIDEO OUT (PHONO);	1.0 Vp-p,	75 ohm, unbalanced
	RF Modulated; NV-G21A: VHF channel 0 or 1,		75 ohm, unbalanced
	NV-G21EA: VHF channel 2 or 3,		75 ohm, unbalanced

AUDIO

Input Level:	AUDIO IN (PHONO);	−10 dB,	more than 50 kohm, unbalanced
Output Level:	AUDIO OUT (PHONO);	−8 dB,	less than 1 kohm, unbalanced
Audio Track:	1 track monaural		

Video Horizontal Resolution:	Colour; more than 240 lines
Signal-to-Noise Ratio:	Video; more than 43 dB Audio; more than 43 dB
Audio Frequency Response:	80 Hz–10 kHz
Operating Temperature:	5°C–40°C
Operating Humidity:	35%–80%
Weight:	4.9 kg
Dimensions:	380 (W)×82 (H)×342 (D) mm
Standard Accessories:	1 pc. DIN-DIN coaxial cable 1 pc. Infra-red remote controller 1 pc. AC Mains Lead 1 pc. Digital Scanner

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka, Japan

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[redacted]nted in Japan